

November 1944

TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



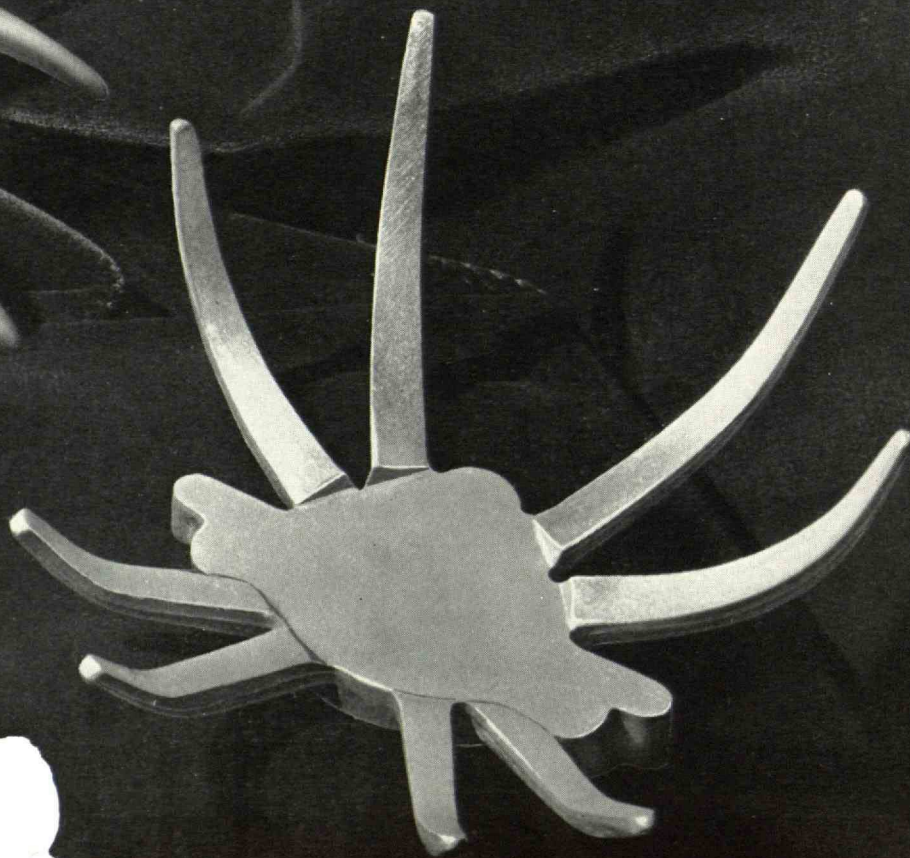
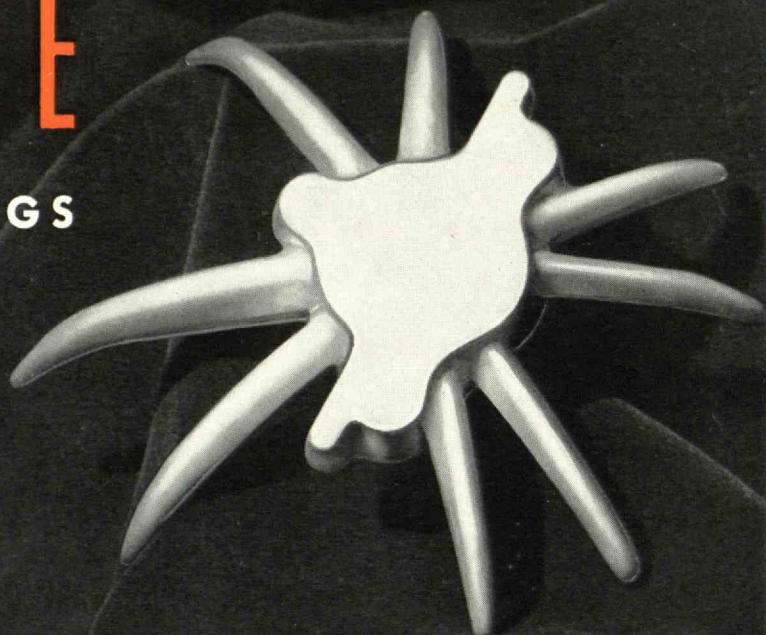
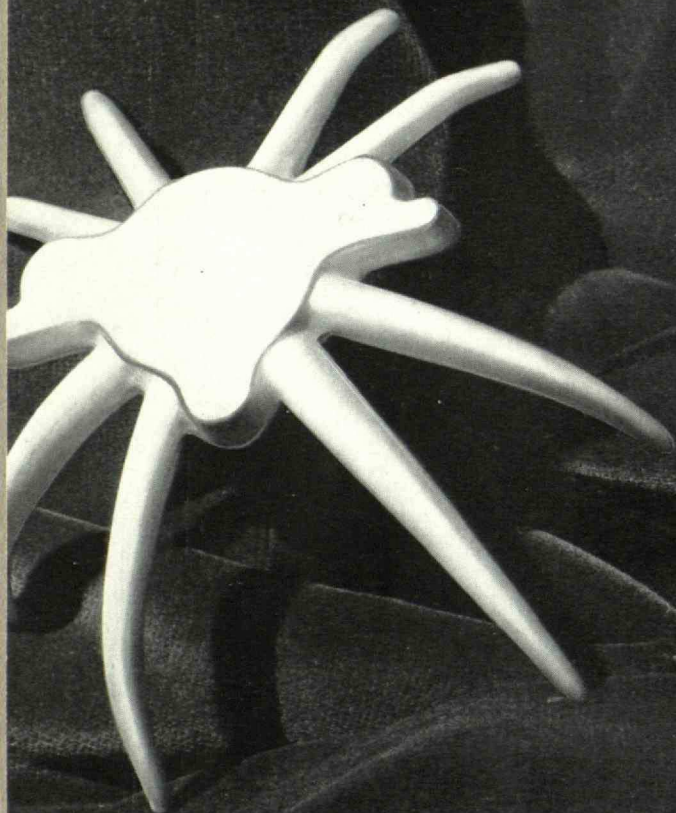
technology review

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INTRICATE

NON-FERROUS FORGINGS



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HARVEY

METAL CORPORATION

HAROLD B. HARVEY '05 • *Engineers & Manufacturers* • SHERRY O'BRIEN '17

74th STREET and ASHLAND AVENUE • CHICAGO 36, ILLINOIS

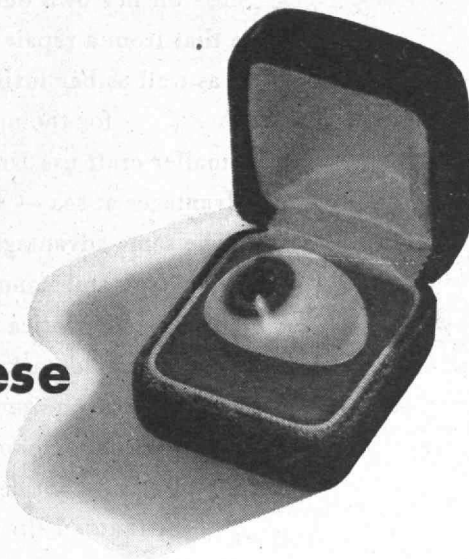
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You'll find it much cheaper



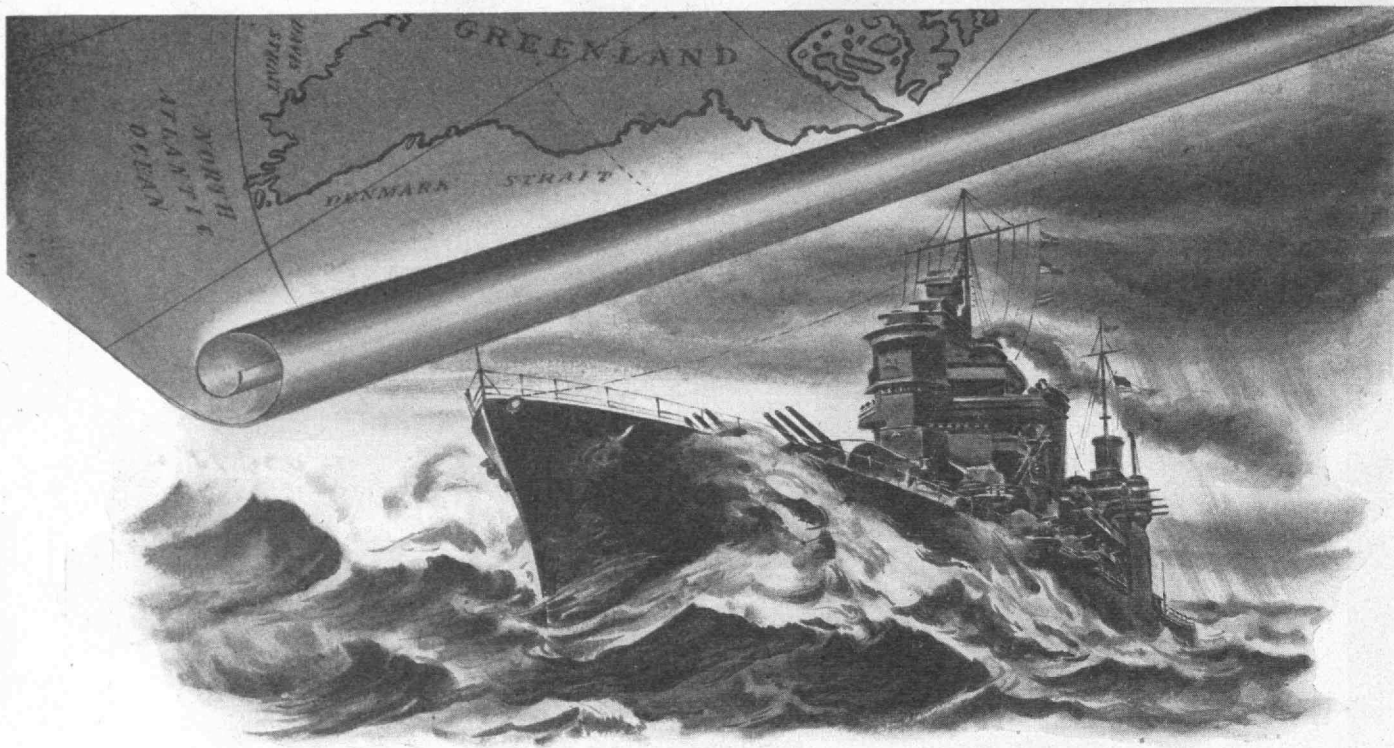
to give your men these

Instead of these



Protect your production... with AO Safety Goggles

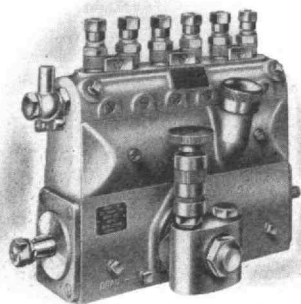
American  Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS



SOMEWHERE EAST OF GREENLAND

She's on her own out here, a thousand miles from a friendly port . . . twice that from a repair base. That's one reason she carries Diesel engines as well as her turbines — to provide auxiliary power in emergencies, for the operation of lights, ammunition hoists, and the like. Many smaller craft use Diesel as prime power too . . . for Diesel offers many advantages at sea — fuel economy, efficient use of bunker capacity, low fire hazard. The same advantages and others dictate the use of Diesel in countless military and commercial applications. Served by many progressive engine builders, America will enjoy rich future benefits as Diesels take over the manifold tasks for which they are ideally suited. As a supplier of fuel injection equipment to American engine builders, American Bosch continues to provide competent world-wide maintenance service, the widest variety of equipment, and experienced counsel in application engineering.

AMERICAN BOSCH CORPORATION • SPRINGFIELD, MASSACHUSETTS



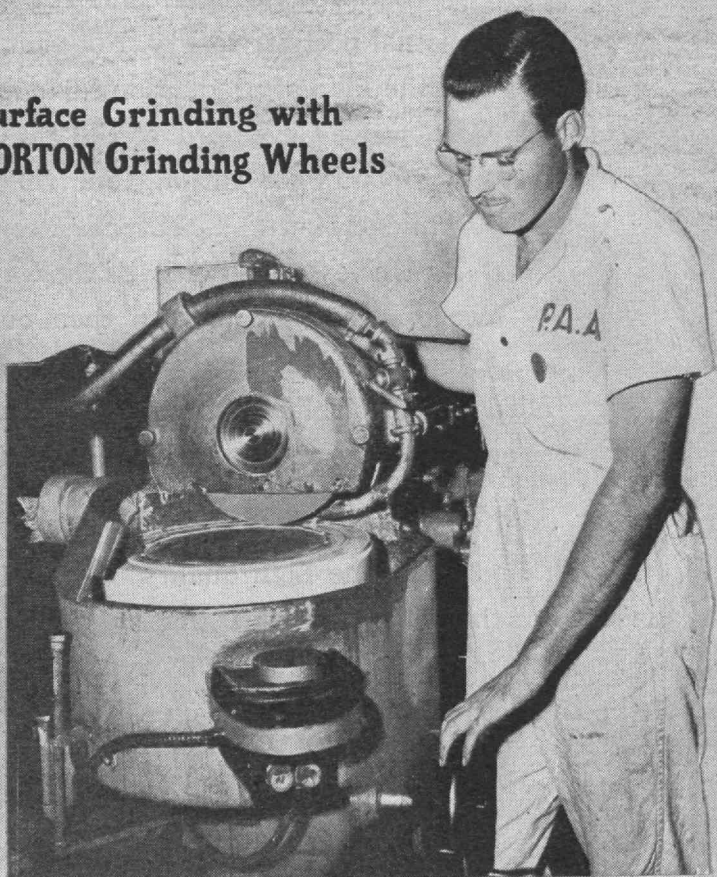
AMERICAN BOSCH

AVIATION AND AUTOMOTIVE ELECTRICAL PRODUCTS
FUEL INJECTION EQUIPMENT

P.A.A. Grinds Brake Mechanisms

- to obtain brake perfection - safety

Surface Grinding with
NORTON Grinding Wheels



WHEN Pan American World Airways' giant Strato-Clippers touch the runway, the brakes must function smoothly and positively—there can be no failure. That's why an important part of the brake mechanism is being ground to high precision in their Miami maintenance shop.

Norton Grinding Wheels are available for every grinding job in aircraft maintenance and repair shops. Several new Norton developments—such as 57 Alundum abrasive and Open Structure—are especially helpful. Your Norton abrasive engineer will be glad to tell you about them.

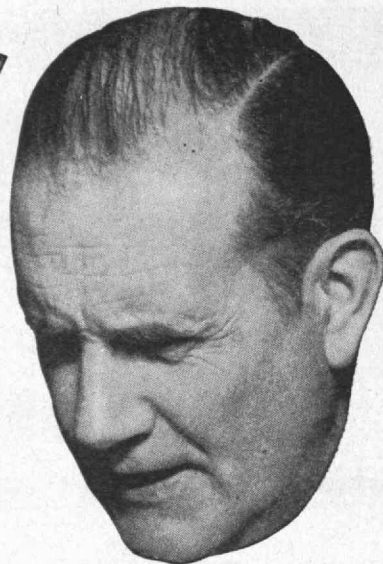
Norton Co., Worcester 6, Mass.

Behr-Manning, Troy, N. Y., is a Norton Division

NORTON ABRASIVES

WANT 10 OR 20 MILLION... IN 30 OR 60 DAYS?

BTR 1/4-Watt, IRC Insulated "Metallized" Resistor L. 3/8" - Di. 3/32"



No, it's *not* a dream! It's an actual postwar reality. For that's the kind of production capacity we've developed at the IRC plants for turning out these midget 1/4-watt insulated resistors for Uncle Sam. And that's the way we can continue to turn them out . . . for you, immediately we have fulfilled our basic obligation and restrictions are eased to any appreciable extent.

World's Smallest 1/4-Watt Resistor

You'll find the same high quality standards present in these tiny trojans that you have long recognized in the popular IRC type BT's. One of the smallest insulated resistors on the market, the BTR will find wide application in all types of postwar electronic equipment requiring low-power resistors. Samples and technical data sent on request.

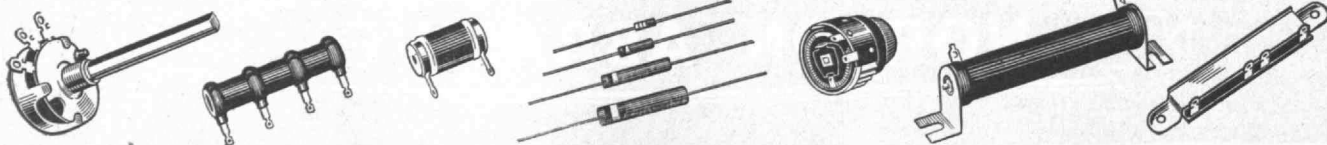
INTERNATIONAL RESISTANCE CO.

401 NORTH BROAD STREET

• PHILADELPHIA 8, PA.

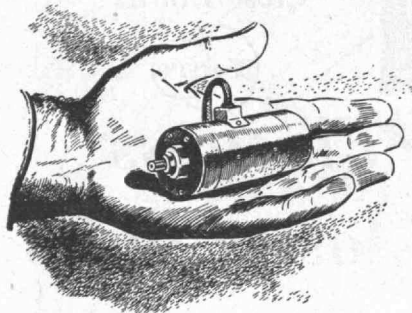


IRC makes more types of resistance units, in more shapes, for more applications than any other manufacturer in the world.

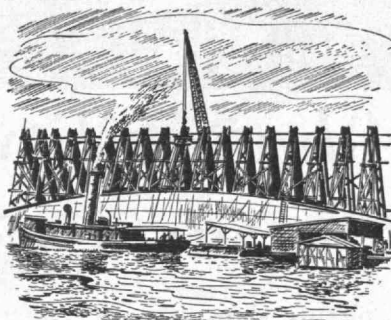


STRANGE JOBS FOR ELECTRIC MOTORS

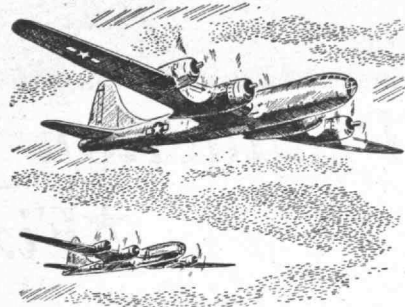
Cannon shoots through doughnut motor. In the nose of this fighter plane, right in the middle of the G-E motor that feathers the propeller, is a 37-mm. cannon. Building a motor with a hole where the shaft ought to be was a brain twister, but G-E engineers solved this problem with an electric motor shaped like a doughnut.



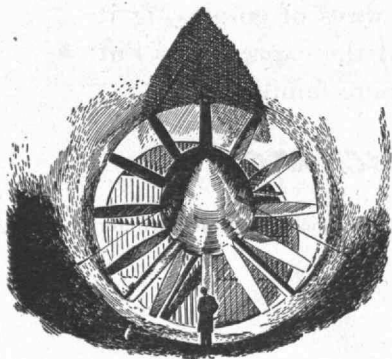
This Tom Thumb motor loads the guns on our bombers and fighters. Other electric motors raise and lower wheels, open bomb bay doors. War requires 40,000 different motor models, keeping G-E research and engineering men busy.



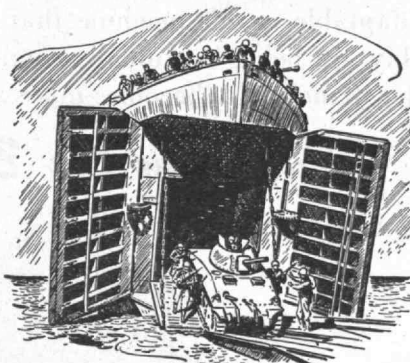
Turning a battleship over. 21 G-E motors teamed up for 21-thousand-ton pull to turn the capsized *Oklahoma* right side up at Pearl Harbor. Electric motors see action on every front, in weapons, and in tools to repair them in the field.



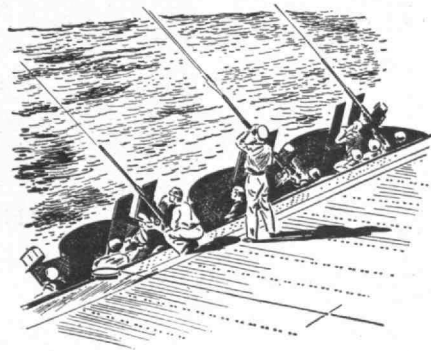
B-29 Superfortress. 150 electric motors act as muscles beneath the sleek exterior of the B-29. They power, among other things, the gun turrets in the G-E-designed fire-control system that arms the Superfort against attack.



Outblowing a hurricane. This twelve-bladed fan has 18,000 horsepower behind it, from one giant electric motor. In wind tunnels like this, G-E motors, sometimes totalling 30,000 hp., produce winds five times as strong as a hurricane.



Push-button doormen for LST's. Push a button, and out pops a tank. It's not quite that simple, but the doors and ramp on an LST are opened, at the push of a button, by electric motors. On an LST, there are 140 electric motors.



Cooling guns. Anti-aircraft guns are cooled by electrically driven pumps which circulate cooling fluid around their barrels. There are more than 900 electric motors on a battleship. *General Electric Company, Schenectady, N. Y.*

- General Electric produced 7 million horsepower of electric motors in 1943.
- Over 2 million G-E electric motors will join the armed services this year.

FOR VICTORY—BUY AND HOLD WAR BONDS

GENERAL ELECTRIC

Hear the General Electric radio programs: "The G-E All-girl Orchestra," Sunday 10 p.m. EWT, NBC—"The World Today" news, every weekday 6:45 p.m. EWT, CBS.

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The advantages of
BLANCHARD grinding

★Production

★Adaptability

★Flatness

★Fixture Saving

Operation Saving

Material Saving

Fine Finish

★Close Limits



★Production ★Adaptability ★Flatness
★Fixture Saving ★Close Limits

**Grinding Valve
Plates, Discs,
Cylinder Heads,
Eccentric Straps**

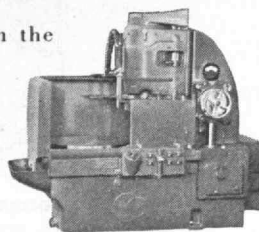
This picture shows a variety of pieces, of cast iron, steel and bronze, ready to be ground on the No. 18 Blanchard Surface Grinder.

Most of these pieces are to be ground on two sides, the usual limits being $\pm .0005''$ and the amount of stock removed from .015'' to .020'' per surface.

So adaptable is this machine that new ways of employing it profitably are being continually found and the expression "Put it on the Blanchard", becomes more and more familiar.

"Put it on the Blanchard"

This job being done on the



No. 18 Blanchard Surface Grinder



Send for your free copy of "Work Done on the Blanchard." This book shows over 100 actual jobs where the Blanchard Principle is earning profits for Blanchard owners.

The
BLANCHARD
MACHINE COMPANY

64 State St., Cambridge 39, Mass.

"HI, FELLOWS, SEE WHAT I FOUND"



...One of the boys in this Company came back from the shore with something under his arm and said, "Hi, fellows, see what I found on the shore." Well you can't imagine how we all felt when he set it on a box near by, opened it up and it was a set from the National Company of Malden, Mass. So we had a Radio technician in our outfit, so he tested it, looked it all over and found it all intact, closed it up again, grounded it, then tried it. The salt water had not hurt it one bit—it gave us grand reception and each night, we, or about 12 of us, listened in and it seemed like a message from home.

(Excerpt from a letter we received from a soldier in the Pacific)



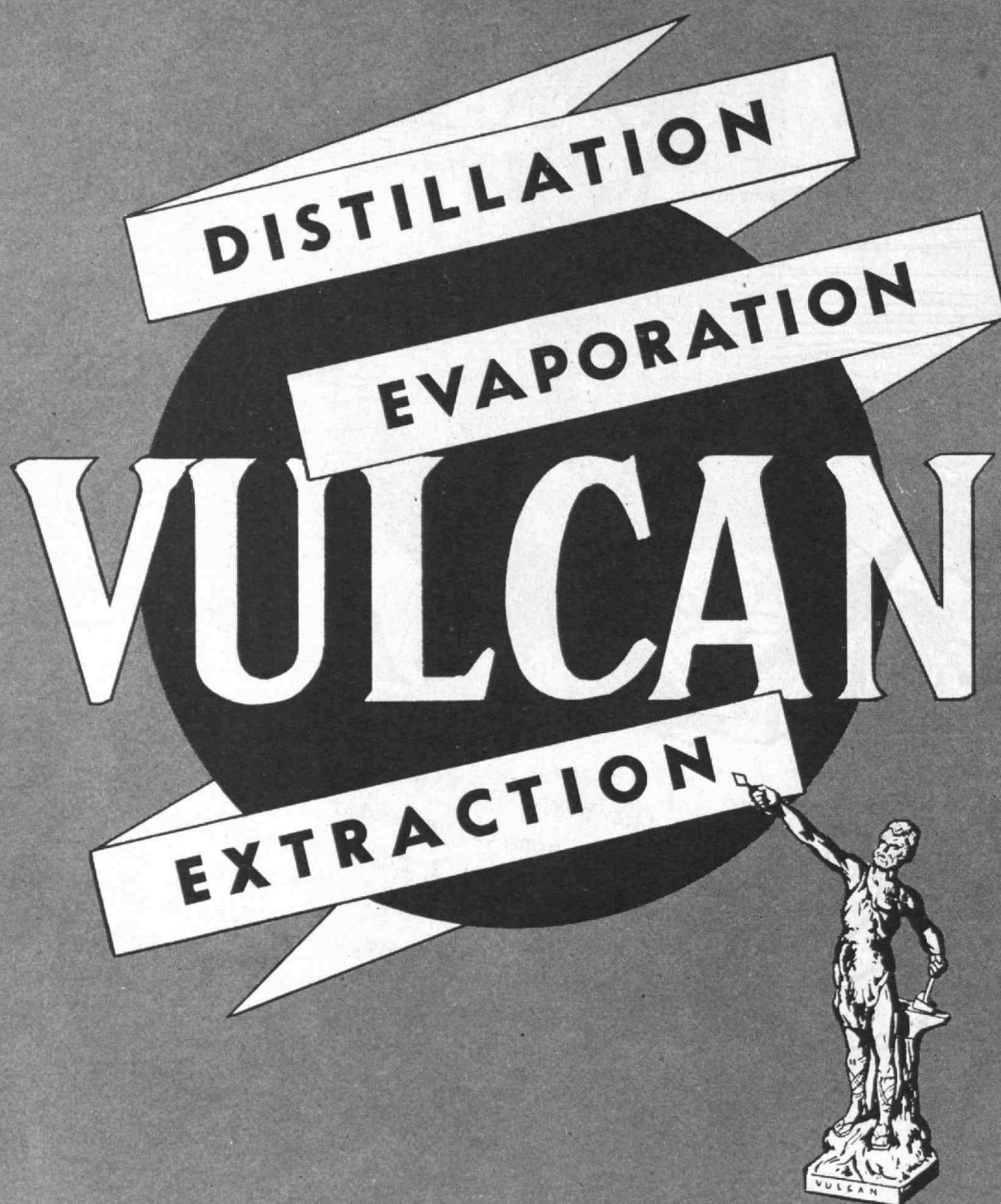
NATIONAL COMPANY, INC.

MALDEN



MASS, U. S. A.

NATIONAL RECEIVERS ARE IN SERVICE THROUGHOUT THE WORLD



★ ★ ★ PROCESSES AND EQUIPMENT ★ ★ ★

RESEARCH

BASIC ECONOMIC PLANNING

PILOT PLANT OPERATION

PLANT and EQUIPMENT DESIGN

FABRICATION - INSTALLATION - INITIAL OPERATION

THE **VULCAN** COPPER & SUPPLY CO., CINCINNATI, OHIO

Test after Test Leads to Year after Year of Dependability



One of many tests of Busch-Sulzer parts. Magnified 62½ times, the image of screw threads is compared with a standard form to prevent errors not visible to the naked eye.

Every part of every Busch-Sulzer Diesel engine is rigidly inspected and tested for strict adherence to specifications before assembly. Then the assembled engine undergoes an operating test for performance standards. Finally, before shipment, the dismantled engine's working parts are given another painstaking inspection.

This testing is but one of the factors that contribute to Busch-Sulzer Diesel engines' reputation for dependability and long life. Other factors are the skill that should be expected of America's first builder of Diesels—plus simplicity of design that results in fewer moving parts, better lubrication and less wear.

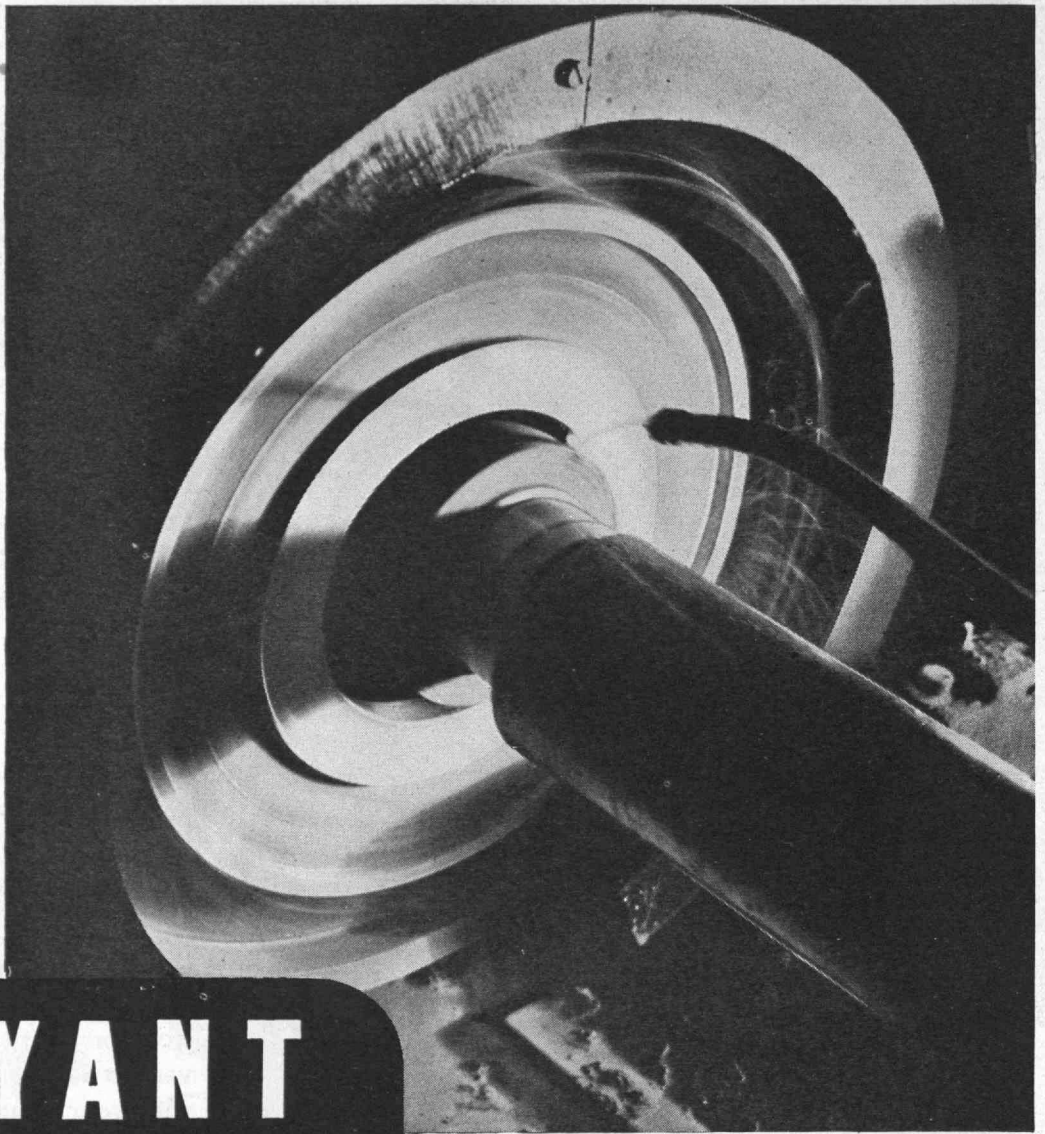
Our facilities and trained personnel have been greatly expanded in wartime. When conditions permit, we will go right to work on postwar orders without reconversion delays. Why not acquaint us now with your requirements? We build both marine and stationary engines, both 2-cycle and 4-cycle, with a variety of speeds. An inquiry on your letterhead will receive prompt attention.

**BUSCH-SULZER BROS.—
DIESEL ENGINE COMPANY**
SAINT LOUIS

**BUSCH-
SULZER**
ST. LOUIS



*America's Oldest
Builder of*
DIESEL ENGINES



BRYANT GRINDERS

Of all the machine tools in use by industry, none is more basic or more vital than the internal grinding machine.

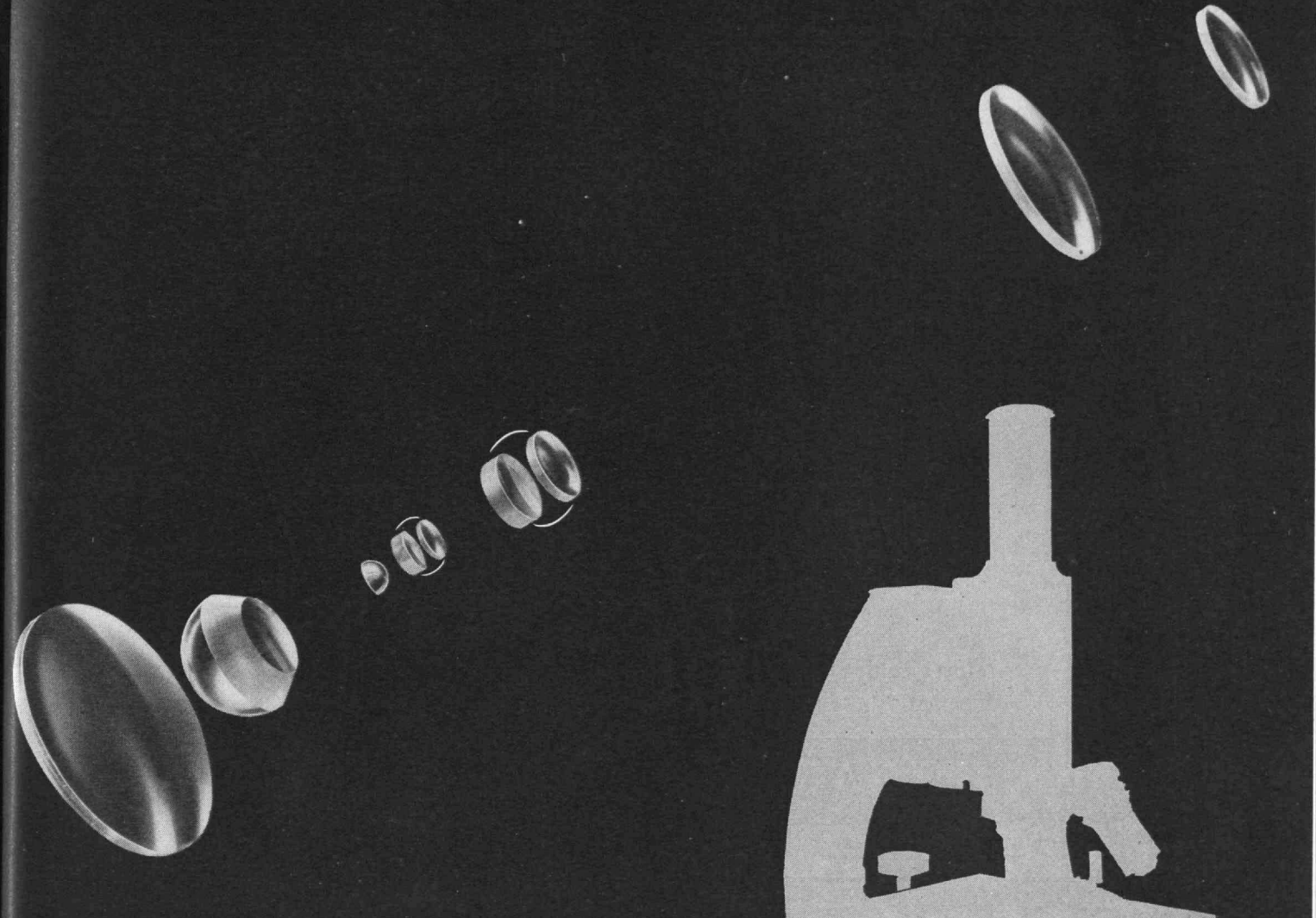
Machine tool engineers have helped the men of government and of industry to plan the most desperate and gigantic production program of all time . . . and they can help those same men in planning today for the peace that must be won after the war is won!

One of these is a Bryant man. Send for him today!

BRYANT

CHUCKING GRINDER CO.
SPRINGFIELD, VERMONT, U. S. A.





This is the Microscope You are Waiting for



These are the lenses that make up the heart of a microscope. Assembled and mounted on the stand they become a B&L Microscope . . . the microscope you have been planning to purchase when restrictions are lifted.

It will represent the best and the latest in the application of optical science to microscopy. From the initial mathematical calculations to the final inspection each B&L Microscope will always measure up to this standard and each is the product of the experience that has gone before.

There are the facilities of America's first and finest optical glass plant, new methods of manufacture such as the diamond milling of optical parts, new materials

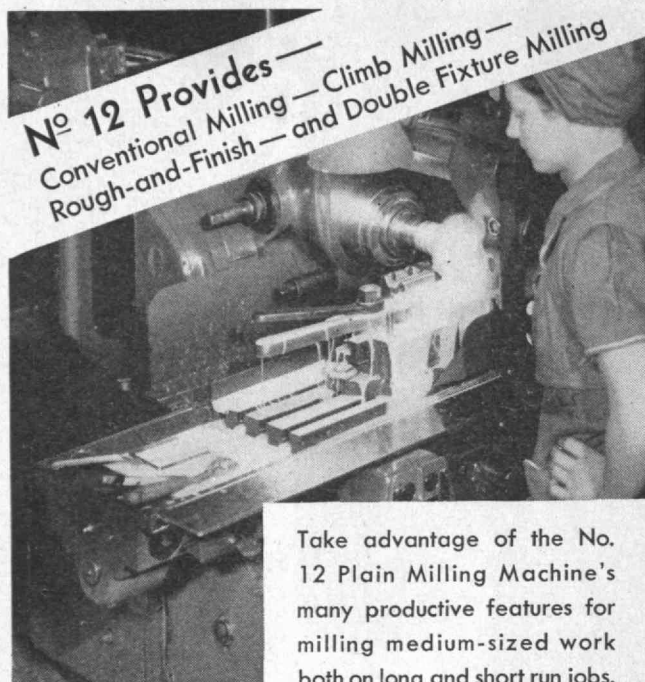
such as the B&L low temperature lens cement and other new techniques. All these things, and more, will be combined to give you the finest optical equipment that can be built.

BAUSCH & LOMB

OPTICAL CO., ROCHESTER, N. Y.



ESTABLISHED
1853



No. 12 Provides —
 Conventional Milling — Climb Milling —
 Rough-and-Finish — and Double Fixture Milling

Take advantage of the No. 12 Plain Milling Machine's many productive features for milling medium-sized work both on long and short run jobs. **Climb milling** is particularly valuable for many present day requirements.



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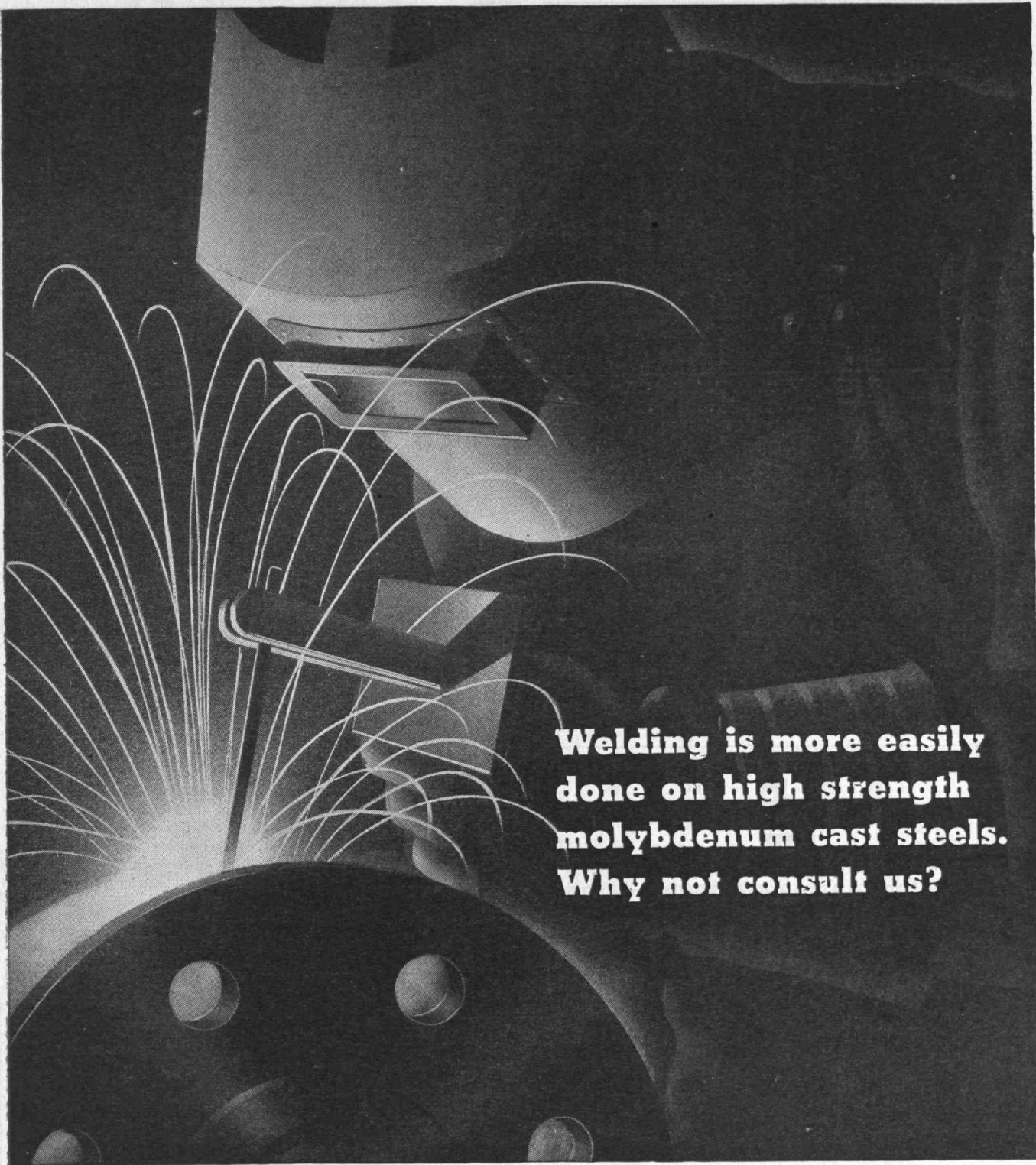
THE TABULAR VIEW

Enter. — In this inaugural issue of its 47th volume The Review welcomes to its company of Editorial Associates three writers who are already well known to Review readers and who can be counted on further to sharpen the magazine's survey of science, engineering, and related fields. DAVID O. WOODBURY, '21, whose biographical study of Elihu Thomson appeared last winter, has ranged widely as a commentator on and expositor of technological and engineering matters. The author of several volumes, he has been a frequent contributor to The Review (see page 22) and conducts in *Collier's* a swift-paced and stimulating department, "Your Life Tomorrow." FREDERIC W. NORDSIEK, '31, assistant to the director, department of applied research, Standard Brands, Inc., since 1943, has been a research bacteriologist, a public health executive, and a teacher. Patentee in the bacteriological field, he is a careful student and a shrewd writer on topics in that and other areas of interest, and his work has appeared in the "Encyclopedia Americana" as well as in journals and magazines. In this Review, he is represented in "The Trend of Affairs." WILLY LEY, who came to specialize in the history of science after study of general science, natural history, and astronomy at the Universities of Berlin and Koenigsberg, was one of the founders of the German Rocket Society and a leader in its varied activities before he left Germany in 1935 to become a citizen of the United States. He had published several books in Germany and is the author of a group of volumes published in this country, the most recent being *Rockets*, which appeared in March. He has contributed a number of stimulating discussions to The Review.

Special. — An extremely interesting collection of applications of initiative and ingenuity are the training devices developed by the Special Devices Division of the Navy's Bureau of Aeronautics for the instruction of personnel. Devised to meet the special needs of war, all of them give physical expression to basic pedagogical truths, and many of them are directly applicable without change to peacetime teaching. Through the co-operation of Captain Luis de Florez, '11, director of the division, The Review has in this issue (page 23) the pleasure of discussing them.

Comfort. — In this Review (page 25) commences a vigorous story from little-known history — the origins and growth of patent furniture and railway passenger-car accommodations. SIGFRIED GIEDION, whose comparable account of the pin-tumbler cylinder lock in The Review for November, 1943, is well remembered, pushes farther beyond the frontiers of conventional culture history in this contribution. Dr. Giedion's work is drawn from data being assembled for a study of the influence of mechanization on our life, which will be awaited with interest equaling that which greeted his notable *Space, Time and Architecture*, now in its fifth printing. The translation of Dr. Giedion's article is by Martin James.

Safety. — Looking toward the home building which is regarded as of primary importance for the postwar years, FRANK L. AHERN, '14, draws on his wide experience in safety programs to point out (page 32) practical necessities which must be met if postwar housing is to be of lasting value. Chief of the safety division of the National Park Service, Mr. Ahern has been for years active in the work of the National Fire Protection Association and similar bodies. He is chairman of the Department of the Interior's committee on health and safety and has written widely on subjects dealing with protection of life and property.



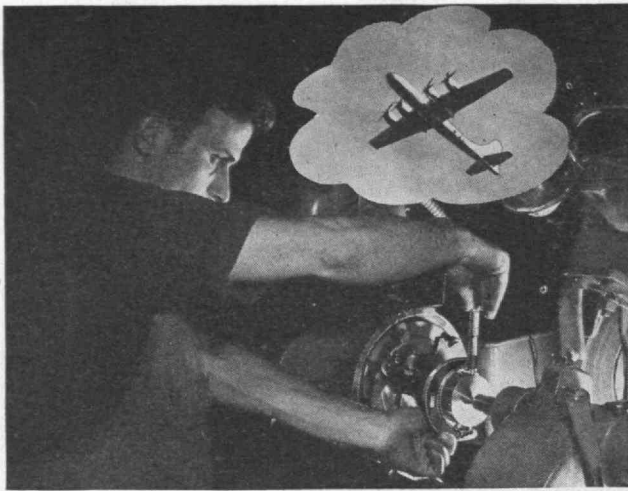
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done on high strength
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DATA ON MOLYBDENUM APPLICATIONS.



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FERROMOLYBDENUM • "CALCIUM MOLYBDATE"

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500 Fifth Avenue • New York City



BUILDING BOEING'S B-29 TAKES GOOD WORKMANSHIP AND GOOD TOOLS

At Boeing Aircraft Company's great Seattle plant you'll find many a Starrett Micrometer, Vernier Gage, Dial Indicator, Bevel Protractor and other preci-

sion measuring tools. Starrett Tools have the "feel," the lasting accuracy and dependability that inspire confidence and speed in skilled hands. It pays to stick to Starretts.



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WORLD'S GREATEST TOOLMAKERS

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IF

you are looking for a firm of manufacturing engineers to work with you on a new machine problem—why not get in touch with Rodney Hunt? This firm has complete foundry, metal-working and wood-working facilities, a highly trained staff of supervising engineers and over a hundred years' experience. Rodney Hunt specialties are:

STAINLESS STEEL TANKS (patented construction gives extra strength per weight, reduces cost)

INDUSTRIAL ROLLS (wood, plastic, metal or rubber covered—special rolls of all kinds—patented head construction keeps shafts tight)

TEXTILE WET FINISHING MACHINES (a leader in this field for 100 years—many new stainless steel constructions and improved designs for dyeing machines, washers, fulling mills, etc.)

WATER WHEELS AND REPAIRS (water power equipment from dam to tail-race—"Hi-Test" runners set record 93.38% efficiency in Official Holyoke Test)

GATES AND HOISTS (a complete line of floor stands, bench stands, gear hoists, timber and metal gates and accessory equipment)

If your problem happens to fall in one of these fields, you'll find



TOPS for intelligent, prompt service.

RODNEY HUNT MACHINE COMPANY
20 Hill Street • Orange, Mass.

MAIL RETURNS

About Ader

The following exchange of correspondence will interest readers who enjoyed Fred C. Kelly's article on the Wright brothers in *The Review* for December. — ED.

FROM LIEUTENANT RENÉ G. DELBOS:

I have just finished reading your article, "The Revolution at Kitty Hawk," which appeared in *The Review* for December. It's a very interesting article and I enjoyed reading it, but once more I had to learn in an American publication that the Wright brothers had invented aviation and that the first flight of a heavier-than-air, engine-powered plane was made at Kitty Hawk on December 17, 1903. The fact is that such a flight had been made over 10 years before, in the late '80's or the early '90's (I forget the date) by Clement Adler in France, on his own monoplane, in a little field near Paris.

Clement Adler's successful flight was recorded, controlled, and even photographed by French officials, and communication of the event was made to the Académie des Sciences in Paris. In your article you take great pains to demonstrate that the Wrights actually invented the airplane, and you point out that they did not get much more than "inspiration" from their predecessors, among whom you name Lilienthal, Langley, Cayley, Henson, and so on, but you do not even mention Adler.

The whole world recognizes the Wrights as genial pioneers of aviation, and needless to say a great nation like the United States of America would not lose any of its greatness or its glory in giving credit to the achievements of a scientist or a pioneer of another nation. If you have a few minutes to spare, I would appreciate hearing from you on why Adler is never credited in the United States for the first airplane flight and his name never mentioned. This has always puzzled me.

French Liaison Office

FROM FRED C. KELLY:

I never like to find myself in controversy with a Frenchman, for I have spent much time in France and am Francophile. But you have got hold of a lot of misinformation about the machine you mention. To begin with, it was not the "Adler" machine, as you call it; the name was "Ader." It never flew; never more than three of its four wheels left the ground at once. True, an impression was created that it had flown, and I believe the label on it, in the Conservatoire National des Arts et Métiers, contained misstatements. Several years after the trials in 1897, the report of General Mensier, chairman of the committee in charge of the tests, was published, and made clear that the Ader machine did not fly. This report appeared in various French publications, in the *Aero Club of America Bulletin* for May, 1912, and in the *Aéronautical Journal* (London) for July-September, 1916.

(Concluded on page 70)

**Speed with
Economy**



The Pullman Co.

If you have a *difficult* building problem, talk it over with us. In our 27 years of industrial construction, we have overcome many unusual conditions — both on new building and alteration work.

W. J. BARNEY CORPORATION
101 PARK AVENUE, NEW YORK
INDUSTRIAL CONSTRUCTION

Alfred T. Glassett, '20, Vice President

Chemicals that protect your car!

HERE ARE THREE CHEMICALS that you are probably better acquainted with from the way they *act* as anti-freeze in your car than from the way they *look* in print.

These chemicals are manufactured in large quantities by CARBIDE AND CARBON CHEMICALS CORPORATION. Uncolored, they are water-white. To the chemists, who must know what they will do in your car, they are compounds of carbon, hydrogen and oxygen, the atoms of which are shown here in the molecular models.

ETHYLENE GLYCOL, ETHANOL and METHANOL are the bases of anti-freezes—and they help to take one of the worries out of winter for millions of motorists.

TODAY AND TOMORROW

Over the years, CARBIDE AND CARBON CHEMICALS CORPORATION and other Units of UCC, notably NATIONAL CARBON COMPANY, INC., have kept at their research—both in the laboratory and on the road—for the constant improvement of anti-freeze and anti-rust protection for your car. This is an important reason why you can depend on the following whenever and wherever you find them:

"Prestone" ethylene glycol-base anti-freeze. One "shot" gives all-winter protection.

"Trek" methanol-base anti-freeze, which is again available to the extent that the production of methanol has caught up with its war-critical uses.

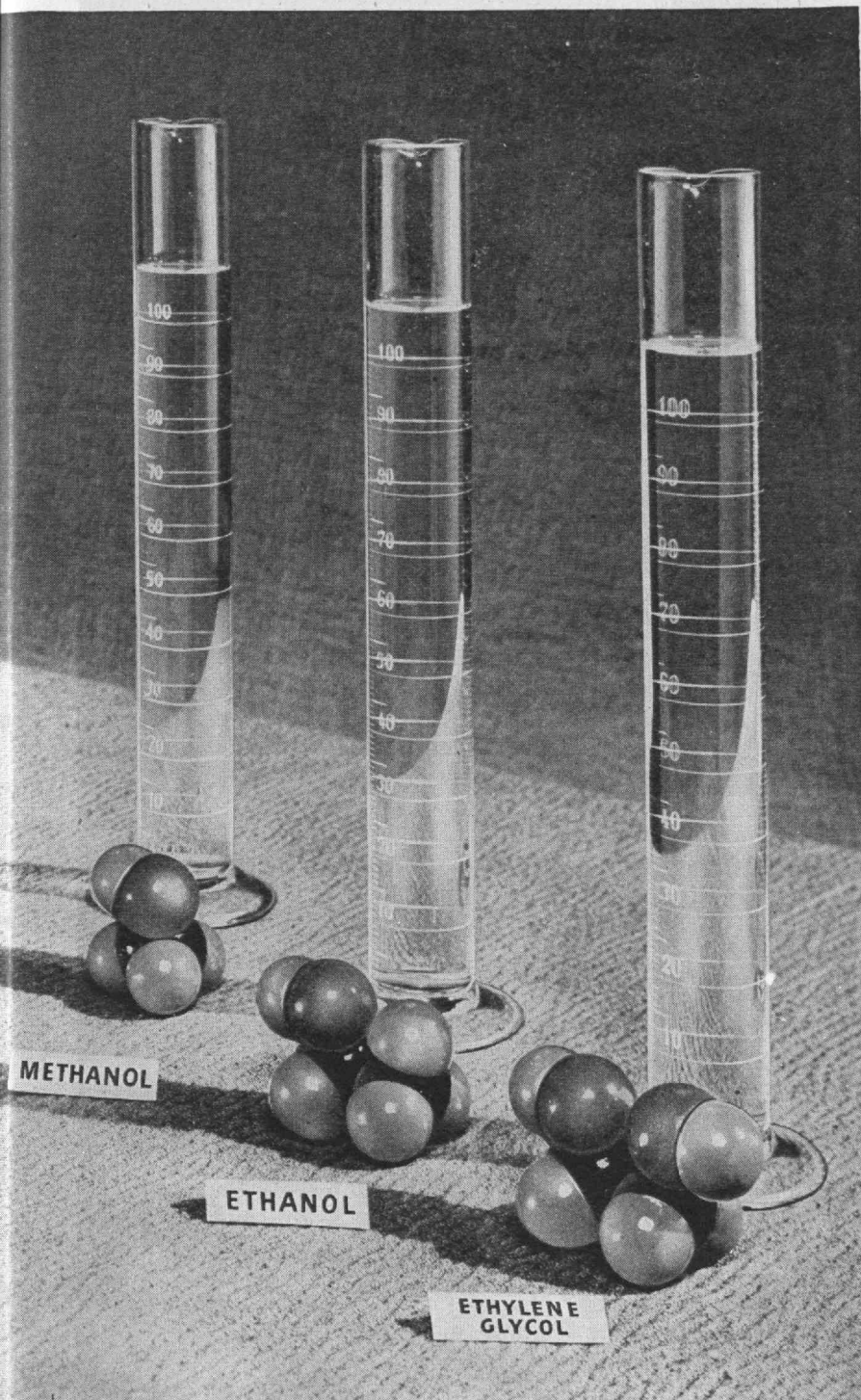
"Blue-Flo" ethanol-base anti-freeze. Not being manufactured this year because ethanol (ethyl alcohol) has a bigger war job to do.

Certain other anti-freezes formulated and manufactured by Units of UCC for large national distributors.

"Rustone" corrosion preventive which, when added to the water in a clean cooling system, inhibits the formation of rust.



Car owners are invited to send for the booklet P-11, "Manual of Cooling System Service." It will be sent without cost or obligation.



BUY UNITED STATES WAR BONDS AND STAMPS

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PLASTICS

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DON'T LET OLD-FASHIONED RESISTORS CRAMP YOUR ENGINEERING STYLE!



**The only
Resistors
wound with
CERAMIC-INSULATED
WIRE**

**INSULATION APPLIED
BEFORE WIRE IS WOUND**

A Major Resistor Improvement—*Not just a minor change*

Don't waste time engineering "around" the handicaps imposed by conventional resistors! Use Sprague Koolohms and get exactly what you want.

No power resistor can be one whit better than the insulation given its windings—and Koolohm ceramic insulation applied to the wire before it is wound gives you the maximum in this respect. Koolohms can be used safely up to their full rated wattage values. Their use of insulated wire permits larger wire sizes to be used,

and guards against shorts and changed values. They give more resistance in smaller size, and are readily adaptable to almost any mounting style best suited to your production.

Standard Sprague Koolohms include 5- to 120-watt power types. Other Sprague Resistors include bobbin types, hermetically sealed power resistors, 5- to 150-watts, and meter multipliers. Write for new catalog—just off the press.

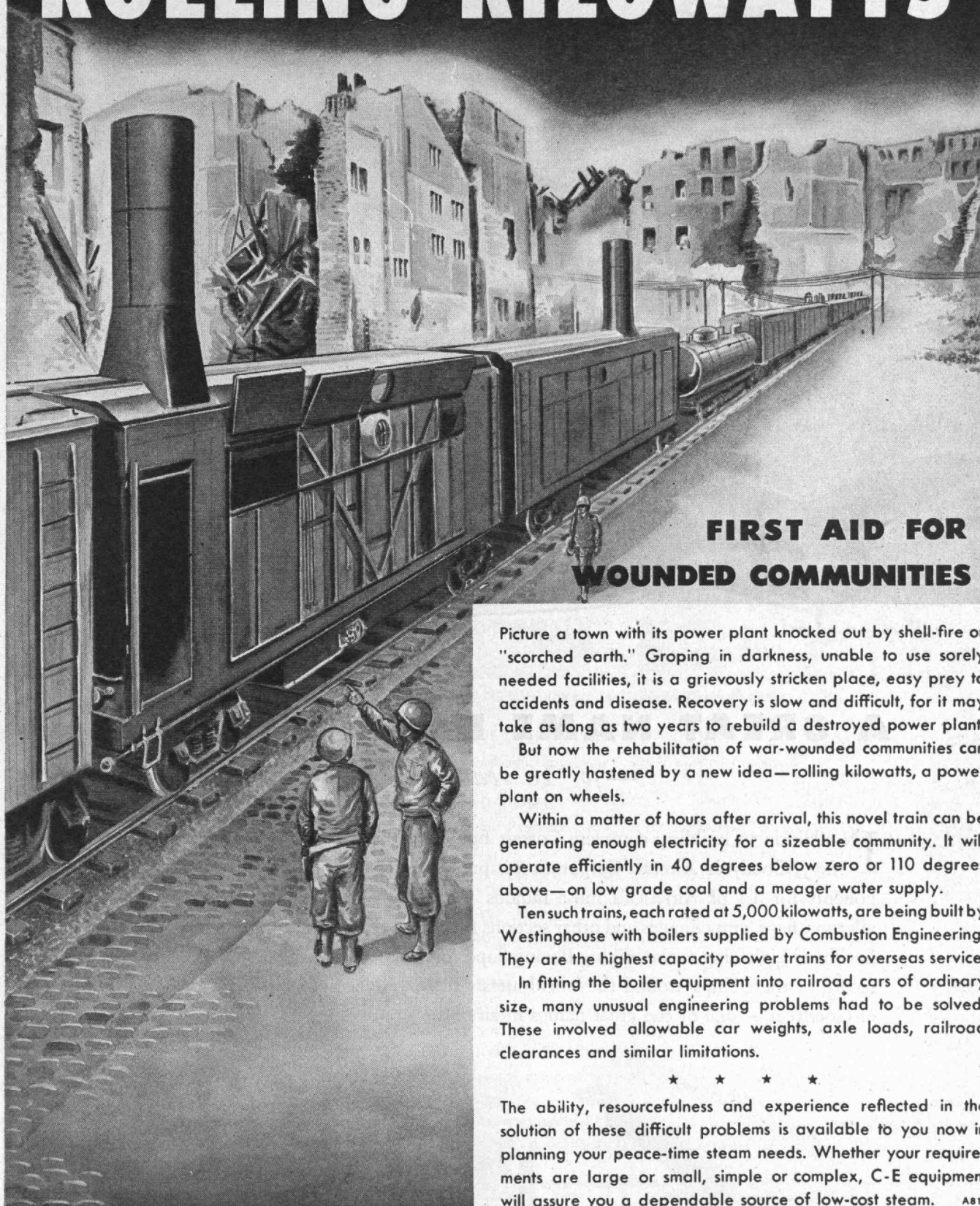
SPRAGUE ELECTRIC COMPANY, Resistor Division
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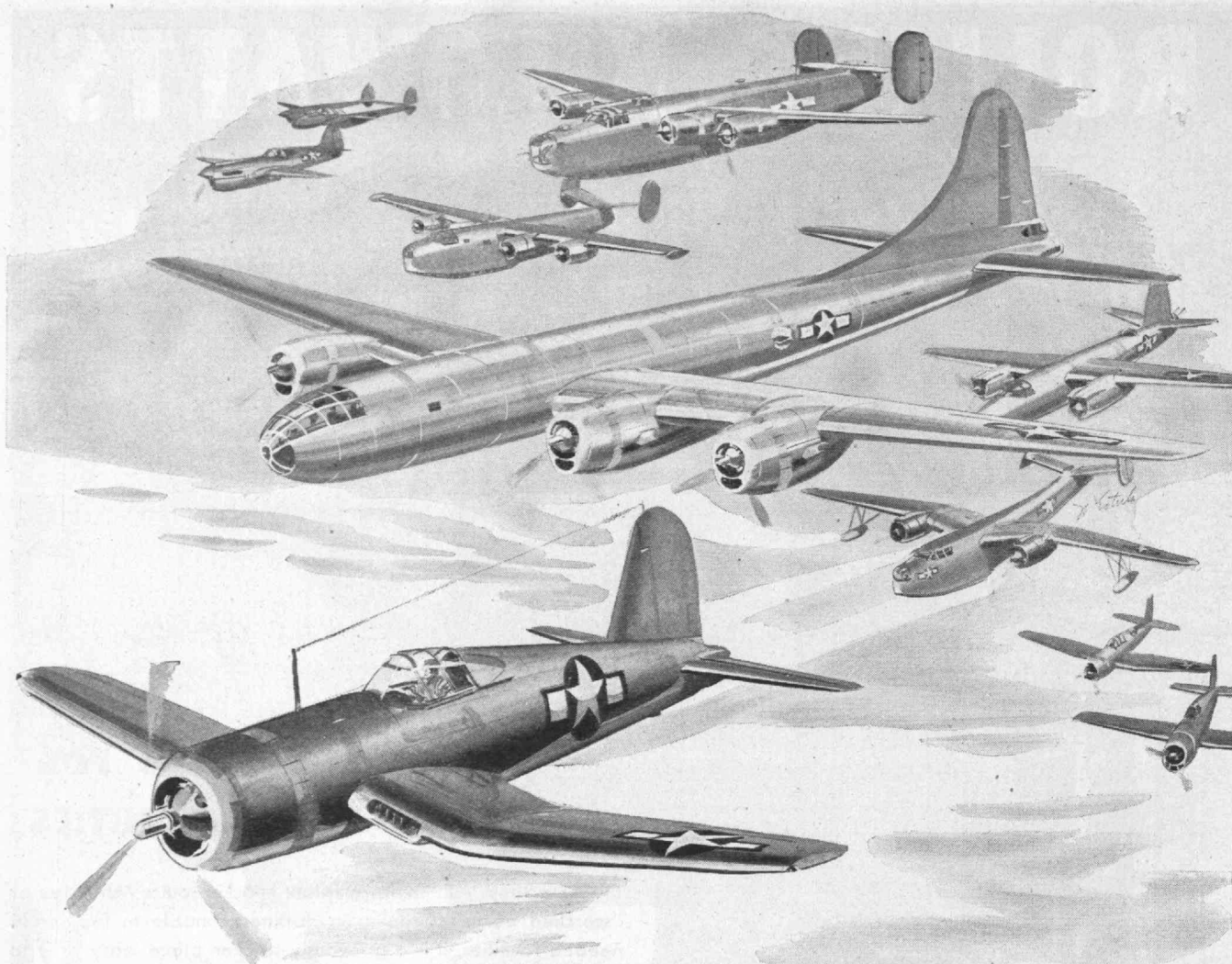
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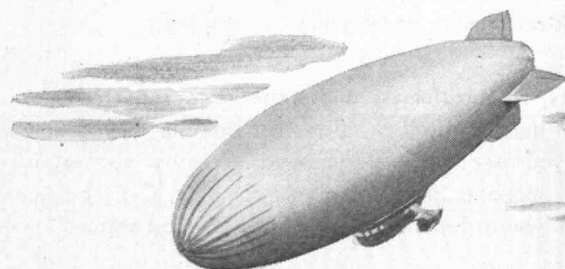
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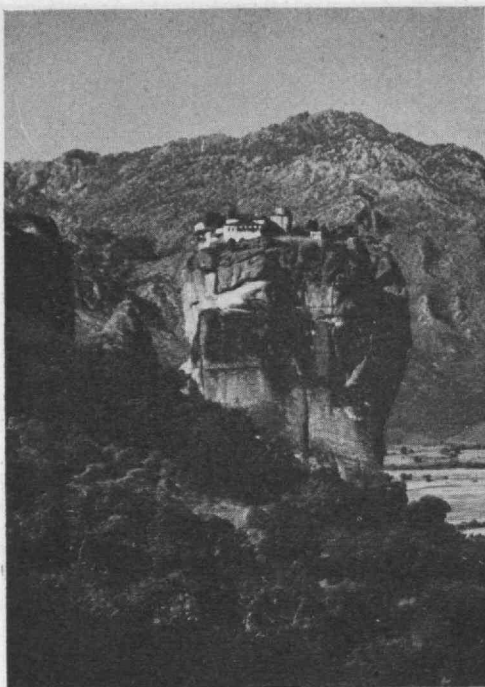


THE TECHNOLOGY REVIEW

TITLE REGISTERED U. S. PATENT OFFICE

EDITED

AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY



Benjamin W. Irvin, Jr., '38

Meteora Monastery on its height near
Trikkala, Greece

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From a photograph by Ruohomaa from Black Star

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Courtesy Fogg Museum of Art

Comfort: Medieval Manner. In this panel of the Werl altar by the Master of Flémalle, painted in 1438 and now in the Prado, Madrid, St. Barbara is seated on a Gothic swing-back bench. The wooden bar that serves as a back rest is mobile, so that the occupant may turn her back to the fire, or face it, as she pleases. Here then is a remote precursor of the American patent furniture which Sigfried Giedion discusses in this Review.

THE TECHNOLOGY REVIEW

Vol. 47, No. 1



November, 1944

The Trend of Affairs

Food for Rumination

THE cow's portly figure is due to her rumen, or paunch. But whatever detriment to vanity this capacious segment of her alimentary tract may be is amply outweighed by its advantages. For one thing, the rumen makes cattle, along with their fellow ruminants, the only higher animals able to assimilate cellulose and hence able to subsist on such unpromising food materials as hay. This the rumen accomplishes by receiving and holding large amounts of the cellulosic feed, which is later regurgitated a little at a time during periods of interprandial leisure for remastication, that pleasantly bucolic-appearing procedure of cud chewing.

The rumen has another important, although only recently recognized, function: It houses a teeming population of bacteria, which pay for their lodging by actively synthesizing vitamins of the B complex, thus making ruminants independent of a dietary source of these vitamins. This relationship has been amply proved by experiments in feeding, in which a ration low in the B vitamins was, after ingestion by the cow, recovered through a rumen fistula, or surgically made opening to the exterior. Such recovered rumen contents are invariably rich in the B vitamins.

Hence in practical farm feeding it is unnecessary to pay attention to the vitamin B values of feeds for cattle or for their fellow ruminants of the farmyard family—sheep and goats. In contrast, vitamin B supplements are customarily added to the rations of swine and poultry. Furthermore, the calf, which does not develop its rumen until some time after weaning (witness its comparatively streamline figure), needs a dietary source of vitamin B for optimal health.

The mechanism of rumen synthesis of vitamins has been the subject of extensive research, the latest findings of which indicate that synthesis of niacin, biotin, riboflavin, and pantothenic acid, all members of the vitamin B clan, is stimulated by addition of the relatively simple

nitrogen compound, urea, to the ration, provided a source of readily fermentable carbohydrate, such as molasses, is included. The same effect was demonstrated less conclusively for pyridoxine but shown not to exist for folic acid; these are two other vitamin B complex factors.

The advantages of the rumen are ultimately beneficial to the ruminant's master, for the welfare of domestic animals is simply a contributor to the welfare of mankind. One of the rumen mechanisms makes it possible for man to feed his cattle cheap and plentiful hay; the other makes it unnecessary for him to add vitamin B supplements to this ration. The vitamins made in the rumen not only keep domestic ruminants healthy but also reach man to some extent in the animals' meat and milk. The proposal has been made that rumen contents of slaughtered animals be recovered and dried for use in feed supplements for nonruminants.

Poor Bossy! First her master takes back her meals through rumen fistulas in order to study the secrets of her digestive tract, and now he wants to recover the last meal she had before going to her death in his behalf.

Tectonic Map

THE manifold geological features of continental United States, particularly the structure of the bedrock, have finally been assembled on one map four by six and one-half feet in size. While other geological maps of portions of this country and even of the entire United States have been published, this map is declared to be unique in the nature and completeness of its information. With the aid of seven colors, it shows the structural contours, the volcanic rock areas, the major intrusive bodies, the exposed regions of the very old foundation rocks, the regions of intense deformation of the rock strata, and the various geographic features.

The data were gathered by a committee of the National Research Council with the aid of geologists all over the country, and were then compiled by the United States

Geological Survey. The map will be of great aid to geological research and instruction, and it will also be useful to the growing number of engineers, prospectors, and searchers for petroleum who are applying geology to their problems.

A New Industrial Language

DAVID O. WOODBURY

SOME years ago engineers and paint experts got the idea that manufacturing plants, with their long lines of black and grimy machines, were psychologically inefficient. Over the centuries black had been the color of mourning, death, darkness. Why not paint factory machines in bright colors, both to end the depressing effect and to improve visibility and therefore safety? Today that idea is leading to a revolution in factory decoration and lighting. Further, it has yielded a chromatic safety code by which all types of industrial hazard may be instantly recognized in any plant anywhere.

Color is a powerful language, based upon fundamental emotions called up in the minds of all human beings through racial habit — red for blood and danger, yellow for flame and surprise, green for grass and safety, blue for distance and caution, white for trust and guidance. Industry is beginning to find that a code built on this basic language is far more powerful than words.

Scientific utilization of color in factories divides itself into two branches: a code of brilliant hues for warning purposes, and the use of differential color planes to produce "three-dimensional seeing" around machines. By the proper application of these two techniques in machine-filled rooms, experience shows, the accident rate can be cut by one-third or even one-half.

This safety code employs six standardized bright colors as warnings for definite kinds of hazard. Brilliant yellow, most arresting of all, is used exclusively for stumble and collision obstacles, such as protruding machine parts, low overhead beams, edges of pits, posts in gangways — anything on which a man might come to grief while hurrying about his tasks. A particularly unexpected hazard is painted with alternate yellow and black stripes which no eye can miss, however preoccupied.

Orange, almost as bright as yellow but psychologically more conducive to thought, is used for painting dangerous machine parts that move. Thus, on opening a gearbox or removing a safety guard, the workman finds that operating linkages, flywheels, gears, shearing blades, and the like stand out sharply colored against a dark background. He knows he must keep hands off till he has found whether the potential danger is an actual one.

At the other end of the chromatic scale, bright blue has been adopted as the color to warn that an unusual condition exists; objects so painted must not be disturbed or touched without first checking. A blue tag, for example, hung on the gate of an elevator shaft means that repairs of some sort are being made; the operating button must not be pushed. Printed words on the tag explain the situation after the color itself has prevented a thoughtless employee from a habitual action that might have killed someone. A similar tag would be hung on a boiler out of service while men were inside cleaning it, or on a switch box controlling a machine taken out of service for repair. This convention is not arbitrary. It was borrowed from the railroads, which for years have been using the

blue tag to say: "Keep off. Men are working on or near this object."

The most familiar warning colors are red, green, black, and white. The new safety code follows the long established conventions: In the industrial plant, red signifies exclusively fire-fighting apparatus — extinguishers, sand pails, axes, and so on. Green, except for its use in diluted form as a background color on machines and walls, is employed only for first-aid cabinets, stretchers, and sick-bay doors. White, as on the highways, is used to direct traffic, sometimes being replaced with black when backgrounds are light in hue. These six colors (with black) compose the entire color code. Its simplicity and lack of confusion are already paying handsome dividends wherever it is used.

Three-dimensional seeing, though not a warning system, is based on the same psychological responses to different colors. The man who runs a lathe must see the workpiece with ease and in good contrast to the machine itself. To achieve this result, machine parts directly associated with the workpiece are painted with so-called spotlight buff. The bare metal of the work and of the actual cutting and operating surfaces will then stand out in clear relief. Structural machine parts are made light gray, easily seen but psychologically unobtrusive. This color keeps them in the background, yet provides the distinction in interest which holds the operator's gaze in the plane of his work. Properly chosen color contrast can be so strong as to make the apparent depth, or third-dimensional effect, more than normal.

Meanwhile the shop itself is treated in distance-enhancing colors that will keep the walls back and bring the active parts of machines forward. An important result is that when the attention-getting factor of the machines is heightened, paints of very high reflecting coefficients can be used on walls, floors, and ceilings, enabling the over-all level of illumination to be doubled without increase of the total light input. This improves the atmosphere and builds morale. And, as inevitably follows, the accident rate is dropped while production is moved up without fatigue.

These results, already well authenticated in a number of war plants, are based on solid facts of illumination engineering and color psychology, verified by exhaustive practical tests. The colors have all been chosen for very definite reasons. A pigment possesses three general properties which stimulate the human eye: hue, value, and chroma. Hue simply means color sensation, as red, blue, green. Value indicates the intensity of the color and is a measure of its ability to force attention. A high value will always shout down a low one. Chroma means purity, that is, richness or "flavor," also an attention getter. These three properties of color can be combined in a single pigment to obtain any desired emotional level. Chrome yellow, for example, has been recommended by the United States Bureau of Standards as the color for all school busses. The particular pigment chosen reflects a band of light in the part of the spectrum to which the eye is most sensitive. Its "value" is very high; that is, it appears very intense and will put any neighboring color in the shade by contrast. Its chroma, too, is high, since the yellow is not mixed or confused with other pigments. Thus it has a dramatic punch that compels attention.

The same method has been used in selecting every color for the safety code. On the other hand, painted surfaces intended to serve as backgrounds (*Concluded on page 68*)

Tools for Teaching

Means and Methods Which the Navy Is Using to Train Fighters Offer Many Useful Possibilities for Peace

By F. G. FASSETT, JR.

THE cloud-splotched sky that had swirled dizzily downward past the nose of the fighter during the climb hung motionless for a breathless instant as the pilot shoved the stick forward. It raced madly upward as he roared down after the diving Jap plane. The drone of his engine rose to a higher whine, the line of the horizon where sea and sky met shot upward across the windscreen, the Zero showed full in the rings of his sight, he drove down the firing button, the chopping staccato of the guns burst across the hurrying shout of the engine.

In the infinitesimal flash of time that separated target and hunter, the Zero rolled out of its dive, up, across, and away. The pursuing pilot bit off a curse of disgust and shouted into the intercom mouthpiece slung below his chin, "Give us that again, will you, lieutenant?"

With an obedience almost mocking in its docility, the Jap plane spun back, climbed the speeding sky, and dived again. This time, following it down, the hunter had no cause for disgust; the barking burst of the guns was rewarded by a red flare blotting out the quarry — the wanted hit was scored.

"O. K.," came the lieutenant's voice in the headphones, "O. K., Jackson, that's got it. We'll cut off and talk it over."

Abruptly the roar of the engine stopped. The pilot — Jackson — stepped out of the cockpit to the wing and thence down to the floor.

"Synthetic?" said he to the lieutenant. "Synthetic. Hell. That's the real thing if ever I saw it!"

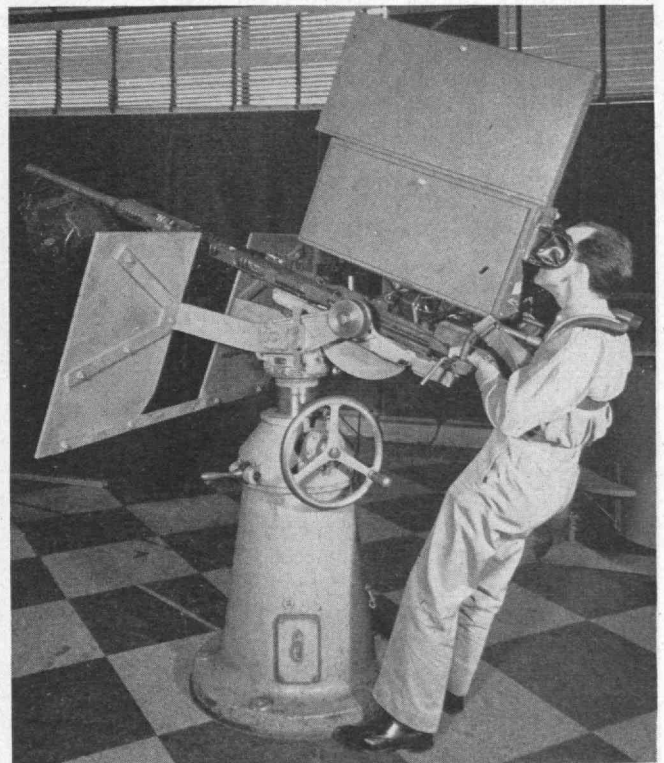
The "real thing" thus commended by Jackson, a fighter pilot with many hours of combat to his credit, is one of a large group of ingenious and versatile affairs known to the United States Navy as "synthetic training devices." Products of the research and inventive capacity of an intensely hard-working and enthusiastic group of scientists, engineers, artists, sculptors, jacks-of-all-trades, and others who work under the dynamic leadership of Captain Luis de Florez, director of the Special Devices Division, Bureau of Aeronautics, synthetic training devices of all degrees of complexity have during the past three years ringed the world around in Navy establishments ashore and afloat. Captain de Florez, a distinguished engineer in civil life, is a graduate of the Institute, a member of the Class of 1911. The devices developed under his direction have contributed directly and incalculably to the winning of the war, and, far more important, to the winning of it at the least possible cost in lives of young Americans.

The physical gamut run by these devices is amazing — in cost, from a penny or two to hundreds of thousands of dollars; in size, from a cardboard package a couple of inches in greatest dimension to a building 45 feet high; in intricacy, from the simplicity of a pocket toy to the ordered complexity of a telephone exchange. Wherever its place

in these rankings, however, the individual synthetic training device is characterized by its shrewd utilization of means carefully chosen to secure a desired end, and by its embodiment of principles of teaching and training that will be found to offer much of pronounced value to pedagogy and to industry.

The trainer in which our pilot tried himself out combines ingeniously a number of mechanical, optical, auditory, and tactile elements, each of which singly is a conventional part of the ordinary technological world. Combined as they are, they make possible in a single small room and at relatively inconsequential cost, the simulation of actual combat conditions. More than that, the trainer — as has been suggested — allows conditions to be controlled for the correction of errors and the development of technique in ways impossible in flight.

It consists of a fighter cockpit, with stub wings and the "greenhouse" of a fighter, including rudder, stick, throttle, adjustable bucket seat, gun, sight, and so on. Here the student takes his place. Below and in front of him, where the engine would normally be, is the instructor's station,



United States Navy

This "panoramic gunnery trainer" mounted on an antiaircraft gun gives opportunity for sighting and manipulation of the gun in simulated combat. A projection system in the box shows realistic motion pictures of attacking enemy aircraft, which the gunner attempts to shoot down, his hits made and rounds fired being automatically recorded.

also completely equipped with stick, rudder, throttle, and control switches. In front of this mock-up plane is a screen, on which a skyscape is thrown by rear-projection apparatus. Movement of the student's controls causes the skyscape to move up, down, and across the screen as the actual scene would seem to move with the same control manipulation in actual flight. The illusion of flight thus produced is convincing beyond doubt in itself; it is augmented by sound tracks providing the noise of an engine, which are also connected with the student's controls in such wise that what he does is registered in sound.

The enemy plane which Jackson shot down is a silhouette which moves up, down, and across the screen in accordance with the movement of the instructor's controls. It assumes different attitudes, sizes, and headings at the instructor's will. Linkage between the student's and the instructor's controls enables the student to bring the target plane into his sight by proper "flying" of his own fighter. Then down goes the firing button. If he wishes, the instructor may switch on a light which is projected on the screen whenever the trigger is pressed and shows the student where he should be aiming. Whenever the student makes a hit, a red flash covers the target plane on the screen. The number of rounds fired and the number of hits made are automatically recorded on counters.

Even the most vivid imagination, unfortunately, cannot hope to grasp how intensely this synthetic trainer creates the sense of reality. The unwontedly dramatized opening paragraphs of this article find their justification in the fact that they were written in an endeavor to convey some surmise of the extreme verisimilitude which the trainer produces. So great it is that after a mock battle long-experienced combat pilots step out of the trainer cockpit with their throats raspy from shouting and their shirts wet with sweat.

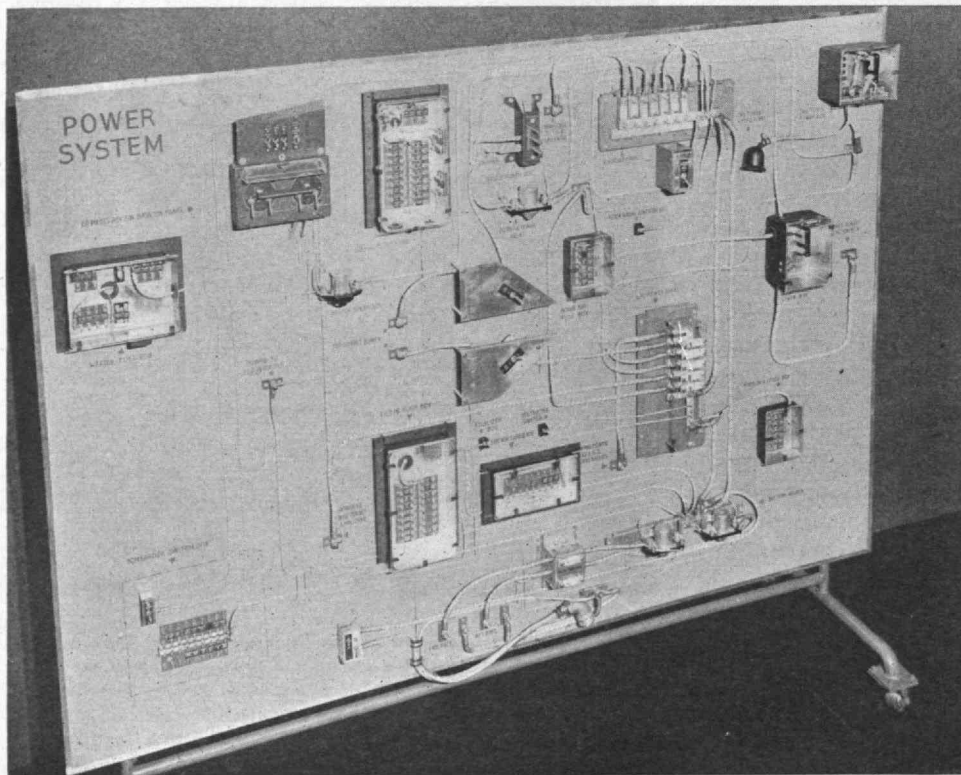
More important even than verisimilitude, however, is the teaching relationship which the trainer permits. Here, student and instructor are in a sense pitted against each

other, engaged in a simulated life-and-death contest. But this utilization of the competitive spirit is not cold-blooded exploitation. On the contrary, it is tempered in sensible ways: Communication between student and instructor is always possible; by means of the projected point-of-aim light which has been mentioned, the instructor may guide and assist the student as judgment of the student's reaction advises; whenever circumstances so indicate, the entire situation may be "frozen" for analysis and discussion. Thus the device does far more than import into a compact building a vivid replica of battle in the skies over the Pacific; it permits the dissection of that battle and the repetition of phases as many times as are necessary to settle problems. It is in this regard that synthetic training as the Navy is practicing it, may well be expected to point the way for schoolmasters and for shop foremen in time to come.

Synthetic training is by no means confined to a single student at a time. On the contrary, a device known as the "operational flight trainer" gives opportunity for the development of teamwork. An exact replica of a multi-engined patrol plane, it is designed to teach complete crew co-operation on the ground. Pilot, copilot, flight engineer, radioman, and navigator by means of it become familiar with every phase of flight procedure under operational conditions. The machine is "flown" by pilot and copilot exactly as the actual airplane is flown. Controls and switches are interconnected through an automatic measuring and calculating system which translates manipulation into readings on the instruments and into warning signals. The "feel" of the controls, the engine noise, and the vibration of the hull are simulated. Outside the fuselage, the instructor by means of a system of telltale dials and lights is continuously informed of all the acts and responses of the crew. He can introduce emergency conditions, such as failure of one or both engines, icing, rough air, shifting of the center of gravity, and failure of the fuel supply. The theoretical path of the flight is shown on a chart on his

table, and the track of the craft is plotted automatically according to the theoretical course. All members of the crew operate their equipment exactly as they would in the air. The crew hence may be given complete missions, be briefed, and go ahead with the assignment as they would in actual operations. In truth, the only difference between this synthetic flight and an actual night or instrument flight is the absence of the sense of physical danger, and of that there is no consciousness in the actual situation anyway.

Close kin of the operational flight trainer are the Link "celestial navigation trainer" and the "bombing trainer." In the first of these, a mock-up plane is slung (Continued on page 46)



The power system of a Navy bomber, as a "maintenance trainer" panel displays and systematizes it for study

Railroad Comfort and Patent Furniture

Expression of a Powerful Inventive Urge in Devising New Means for Bodily Comfort Revealed an Aspect of the Nineteenth Century of Great Historical Import

BY SIGFRIED GIEDION

I

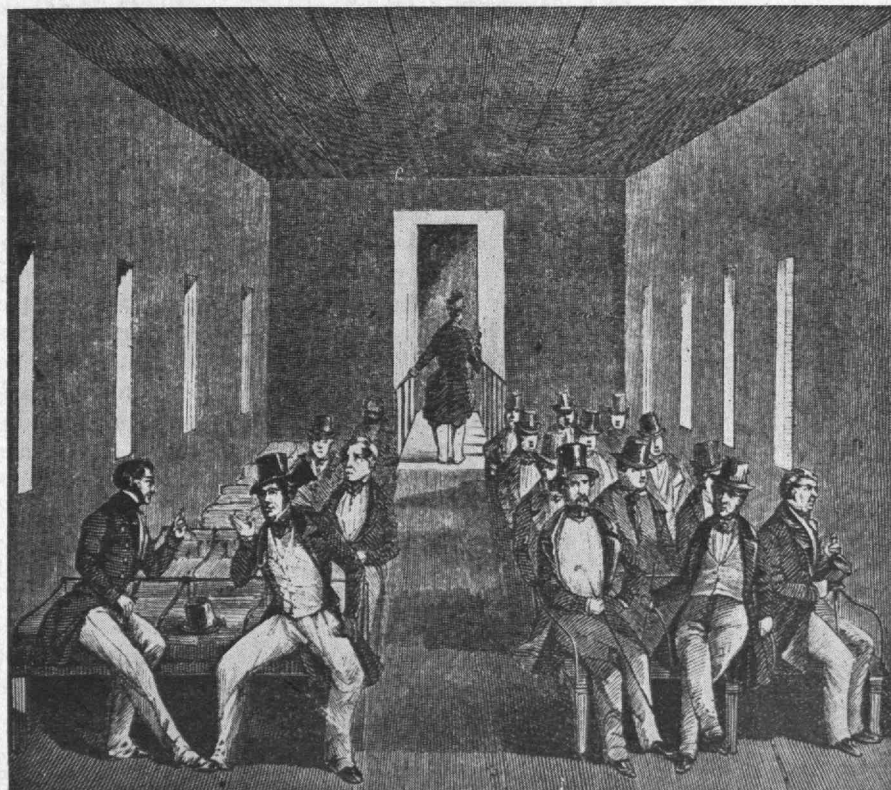
AUTHOR'S NOTE. — *This essay, as was my discussion of Linus Yale, Jr.'s pin-tumbler cylinder lock in The Review for November, 1943, is part of a volume which will deal with the creative as well as the destructive influence of mechanization. It is based upon research into the hitherto unexplored development of the Nineteenth Century's constituent furniture. This first part centers in the development of the railroad coach and the adjustable seat. Subsequent parts will deal with the sleeping car: the convertible seat and the folding bed.* — S. G.

THE furniture of the ruling taste, like the painting of the ruling taste, is an outgrowth of fashion. Every period shapes life to its own image and drapes it in forms peculiar to itself. By a historical necessity, each fashion — indeed every style — is bounded within its own limited time. But across and beyond this circumscribed period there enters another factor, of fluctuating intensity: This is the quantum of constituent elements, of the fresh impulses generated within the period. In them lies the historical import of an era. They can wither from

memory, it may be for centuries, as did the antique heritage. But at a certain time they come up once again in man's consciousness, reaffirm their reality, and form the solid ground for new departures. So, for instance, the Renaissance used antiquity as its springboard, and so in recent decades, the study of primitive man furthered insight into repressed instincts.

It was the ill fortune of the Nineteenth Century that the art and furniture of its ruling taste seldom found an outlook upon the absolute, the genuinely inventive. In the course of time, artistic and historical voyages may reveal other aspects, as the surrealist painters have already discovered. The mixture of banality and *haut goût*, naturalism and eeriness, which pervades the Nineteenth Century can arouse a certain nostalgia. Its interiors, with their gloomy light, their heavy curtains and carpets, their dark wood, and their horror of the void, breathe a peculiar warmth and disquiet. All in all, they reflect the profound pessimism that hangs over the whole realm of feeling in this period. That is one face of the century, a direction opposite to that of practical life, to the aggressiveness and optimism of industry.

The realm of feeling remained under the spell of that somber, chaotically splintered, often mendacious side. Taste was robbed of its emotional security, and gyrated periodically in vicious circles. Thus, in the Thirties, the Sixties, and the Nineties, the rococo manner was adopted again and again in various ways without ever adding anything but transitory trimmings.



L'Illustration, Paris, 1847

Fig. 1. The men's compartment of an American railroad coach, 1847. The upholstered seats are separated from one another by an iron rail, over which the back rest — a plain iron bar — moves backward or forward. The passage to the next coach is uncovered, and the windows are scanty, or, as Charles Dickens dryly noted, there is "a great deal of wall."

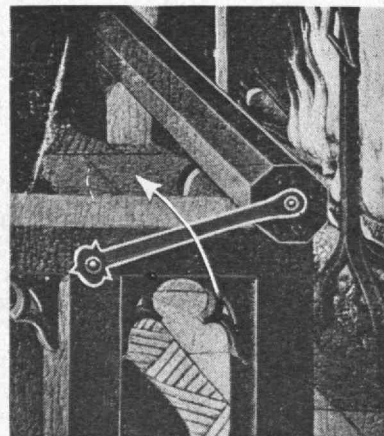


Fig. 2. Detail of the Fifteenth Century swing-back bench in the Werl altarpiece by the Master of Flémalle. Iron arms, pivoting on pins, permit movement of the wooden back rest.

RECLINING AND SELF-ADJUSTING CAR SEAT,



FOR NIGHT OR DAY TRAVELING.

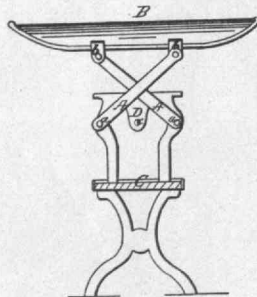
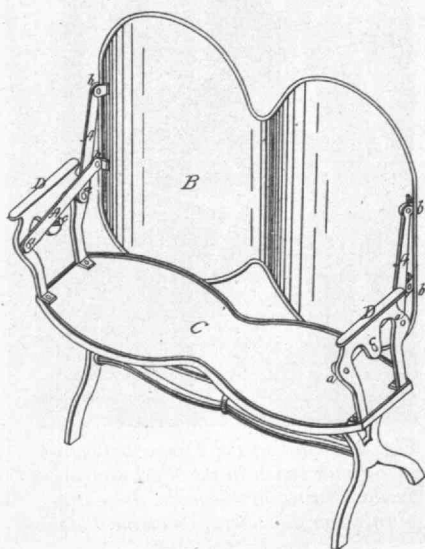
Fig. 3. In this reclining and self-adjusting car seat, 1855, the swing back becomes a starting point for growing comfort. The convex side of the curved back rest supports one's spine for day travel; the concave side supports the head and shoulders at night. This picture is from a trade card in the Bella C. Landauer Collection, New-York Historical Society, New York City.

There is no difference between the pseudomonumentality of the buildings and that of the furniture. Both belong to the transitory phenomena, unquickened by the blood of true inventiveness. Yet they dominated the feeling of their day and mercilessly stifled every impulse that sprang from the deeper sources of the period.

The unexplored complex of patent furniture stands apart from the ruling taste. It called forth nearly all the constituent powers of the century. It revealed the century as it liked to relax when wearing none of its masks. This patent furniture tackled problems in a manner completely new to the century.

How did it come about?

A unifying trend runs through the still unreckoned solutions. Furniture was dissected into separate elements, into separate planes. These movable elements, which a governing mechanism linked and regulated, enabled the furniture to change in adaptation to the body and various postures. It was thus endowed with a flexibility unknown before, and ceased to be a rigid, static implement. Not by accident did the problem of mechanically operated artificial limbs draw so strong an interest at this time. Patent furniture could perform alternate functions. What interests us more, it could take on any desired position of the



human body, change from this position, and return to the normal. Comfort actively wrested by adaptation to the body, as against comfort passively derived from sinking back into cushions — here is the whole difference between the constituent furniture and the transitory furniture^{1,*} of the last century.

The basic problem of patent furniture was above all a problem of motion. The Americans of about 1850 to 1893 drew upon an almost inexhaustible fantasy to solve the motion problem for furniture. Often they were not at all interested in the special use their chair was to serve; they simply wished to contrive a new mechanism, such as a seat that would incline and be fixed backward or forward. And so the American Patent Office would introduce a new category, such as "tilting chairs." Abundant as the solutions were, this problem of motion was by no means simple. The European furniture of about 1920 likewise sought to adapt to the contours of the human body. But there dissection into separate planes fell short in almost every attempt. One stays anchored in the unvarying position of the frame of these pieces; one is not carried back — as in the American office chair or barber's chair — from the reclining position to the normal which permits one to rise without effort.



Fig. 4. The "railroad rest" of 1857, as another card in the Landauer Collection presents it. The passenger fixed the rest to his seat at a convenient angle.

In the four decades from 1850 to 1890 no activity of everyday life was taken for granted. An unbridled inventive urge shaped everything anew. Furniture, like other things, underwent the process of transformation. This called for an independence of feeling and the courage to see with new and untried eyes. These very qualities made the nation's vigor at that stage. No conventions cramped the combinatory faculties of the inventors, whether they developed types for new purposes or whether they endowed existing types with an undreamed of convertibility and mobility.

The America which exhibited at the international expositions between 1851 and 1889 was not ashamed of its non-"artistic" furniture, which, seen beside the pompous European display pieces, no more caught the eye than did the simple² revolver of the

* Footnote references will be found on page 31.

Fig. 5. In the second United States patent for an adjustable railroad seat, 1851, the back rest was adjusted by an "arrangement of two levers. . . , so that any required height of back may be carried and reversed from and to either side of the seat" and secured "firmly in its position at any required angle."

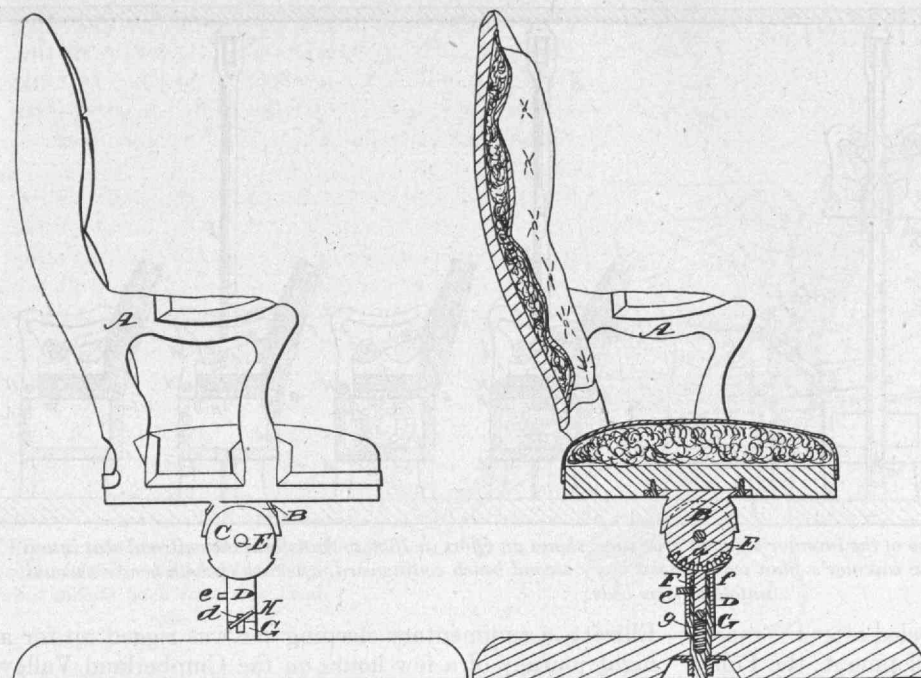


Fig. 6. This "recumbent seat for railway carriages," 1855, terminated in a metal disk clamped between two plates. It pivoted, tilting backward and forward.

American, Samuel Colt, beside the hand-chased pistols of the French smiths. A page from the catalogue of the Parisian international exposition of 1878³ tells us in what lay the American's pride at that time: perforated veneer seats, office desks, adjustable book supports, an automatic sofa spring-bed and lounge, a combined rocking chair and cradle.

A glance over the publications of the United States Patent Office shows what ramified subdivisions had become necessary in every category. Some 70 different subdivisions were added, in the Seventies, solely for chairs of different purposes. The Patent Office in Washington is the only place where this movement can be surveyed. Until 1926, the original models remained sheltered there. As a whole they offered a rare vista over American inventive-

ness in a most original field, and they seemed destined to form the nucleus of a museum of the American way of living. They might have stood witness for one of the most vital periods in the shaping of America. The prosperous 1920's, however, could spare neither the room nor the money for their further preservation. They were sold as so many odds and ends. A baffling lack of historical consciousness is demonstrated in the fact that these models were treated as so much rubbish.

That this constituent furniture of the Nineteenth Century should so far have passed unnoticed in history one can understand; it slips through the meshes of an approach confined to purely formal and stylistic criteria. It was created as the functional answer to definite problems — functional solutions, it is true, but whose veritable meaning has roots lying deep in the funda-

mental nature and habits of man.

RAILROADS AND PATENT FURNITURE

The French report on the Centennial Exposition of 1876 at Philadelphia is a thorough guide to the tools, machines, furniture, and other implements there displayed.⁴ The reporter, looking for an adequate term to explain their peculiarity to the French public, could find no other expression for it than "Pullman car style." He was alluding to simple outlines and plane surfaces, free of ornamental overgrowth. These are the characteristics that naturally emerge in the course of mechanized production. To the European of 1870 or 1880, who used mechanization to simulate handwork, plain furniture must have appeared as something out of ken, as something

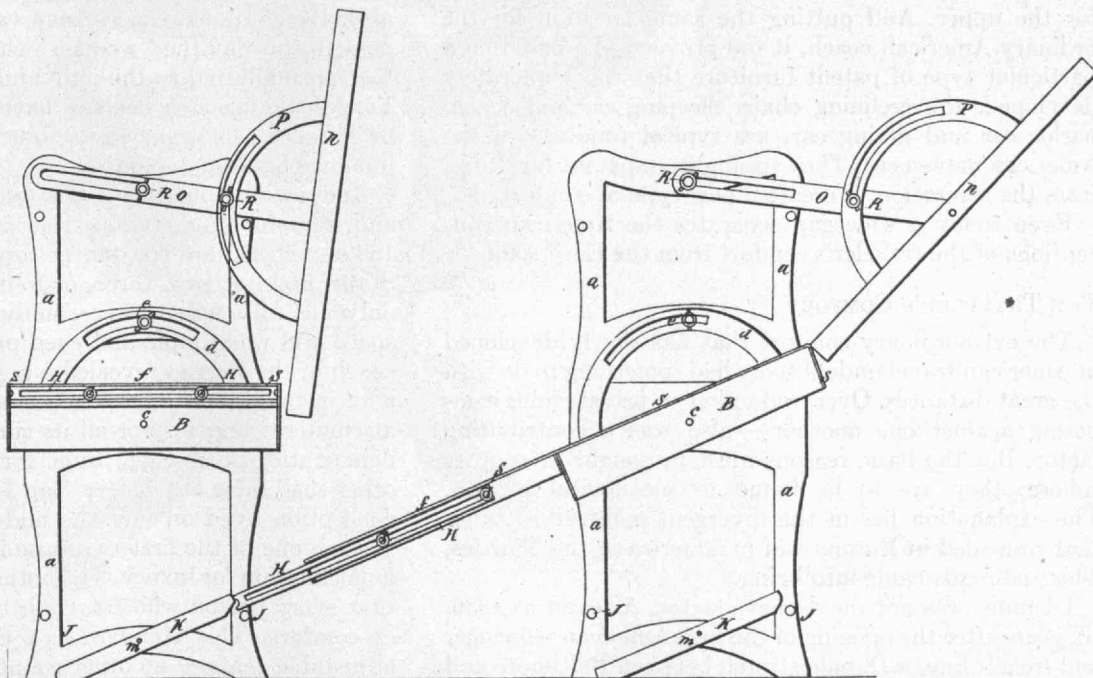


Fig. 7. An adjustable railroad seat of 1858, with mobile footrests and leg rests

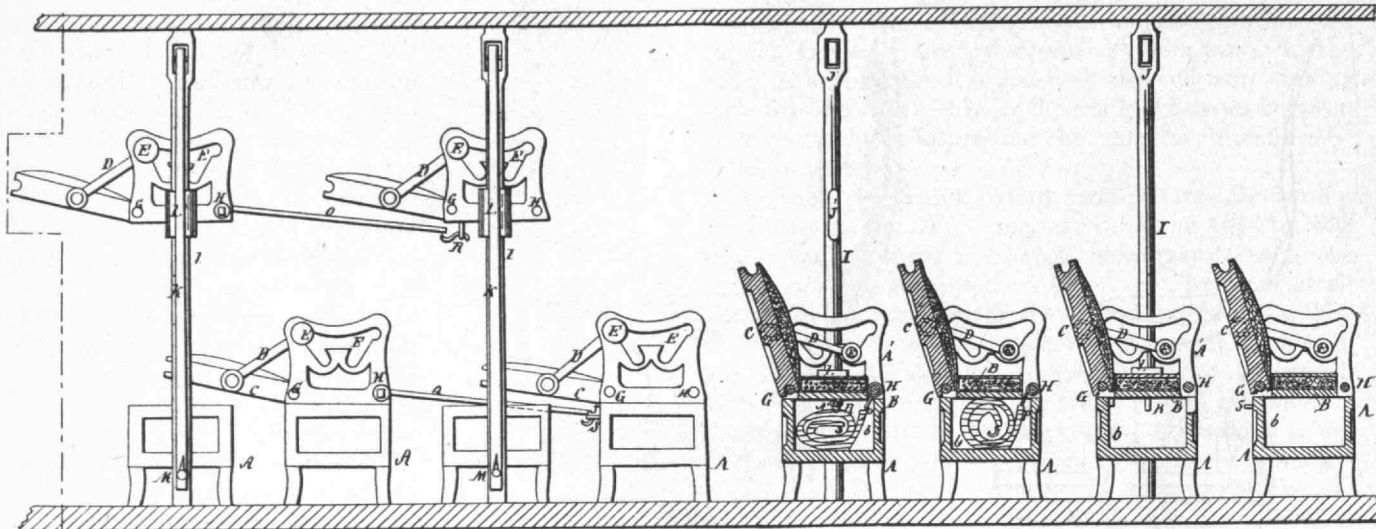


Fig. 8. This composite sketch, comprising two of the inventor's patent drawings, shows an effort in 1858 to transform the railroad seat into a couch without pre-empting extra space. The inventor's plan was to hoist every second bench ceilingward, after which both benches would unfold to form beds.

not yet named, that best was to be labeled after the most popular product of the American development: the Pullman car.

Instinctively the right word was chosen. The sleeping car associated with Pullman's name is almost the sole survivor of the immense group of patent furniture. The sleeping car alone has continued to develop without break to this day. All the other categories — excepting purely technical furniture — suffered a setback around 1893 from which they never recovered.

To the contemporary of 1855 all these ventures in building barbers', dentists', and invalids' chairs that would be comfortable, suited to function and to physiological demands, ranked on a par with the patent reclining railroad chairs. Even the now forgotten models of convertible sofas and folding beds were regarded as important as the earliest, trail-breaking patents for the upper berth.

If we probe the now commonplace notion of the "sleeping car" and ask: Of what elements does it really consist? we find them in two widespread types of furniture — the convertible seat for the lower berth and the folding bed for the upper. And putting the same question for the ordinary American coach, it too proves to be based on a particular type of patent furniture that was elaborately developed, the reclining chair. Sleeping car and coach, parlor car and dining car, are typical products of the American movement. They sprang from patent furniture, from the aspiration to create a new type of comfort.

Even today a wide gap separates the American conceptions of the traveler's comfort from the European.

THE TRAVELER'S COMFORT

The extraordinary comfort that has slowly developed in American travel undoubtedly had something to do with the great distances. Overproduction — private lines competing against one another — also was a contributing factor. But the basic reasons must be sought in another sphere; they are to be found in sociological ground. The explanation lies in the divergent political attitudes that prevailed in Europe and in America in the Thirties, when railroads came into being.

Distance was not the decisive factor. As early as 1836, six years after the opening of the first American passenger and freight line, a 13-mile stretch between Baltimore and

Ellicott, a rudimentary sleeping car was rigged up for a night journey of a few hours on the Cumberland Valley Railroad, today a section of the Pennsylvania. A passenger coach was divided into compartments each containing three simple bunks, one above the other.⁵ Neither was it, as one might think, competition that decisively stimulated this development. Rather, it was the attitude toward comfort which so sharply differentiated the American from the European trends.

The way each country met the question of comfort and of segregation into classes around 1830 mirrors the attitude of the ruling groups to the people as a whole. Over France and Germany at this period, the Restoration reigned, giving absolute privilege to its ruling classes. The railroad cars were built on the principle that the masses deserved little consideration. More than 80 per cent of those who traveled sat huddled together on rough-hewn wooden seats, and countries with four classes also used cattle cars for passengers. Only the upper strata of society could afford any degree of comfort.

In these things, the birthmarks often linger on long after their original causes have vanished. On the Continent to this day the "wooden" class has survived. True, the space allotted to the individual has tripled since the Forties, the wooden benches have been somewhat fitted to the shape of the body — but they remain stiff and immovable, as at the outset.

America had one travel class only (except for Negroes and later for immigrants). European observers between 1830 and 1860 are constantly surprised that the United States had not two, three, or four passenger classes, but only one. Although it had certainly no superfluous window space and was simple and even primitive, the American coach of the Forties revealed a regard for human dignity and, in the upholstered benches, a rudimentary attempt at comfort (Fig. 1). For all its simplicity it reflected the democratic ways of the time, for everyone knew: "No other shall have any better than I." And this democratic conception lived on into the mid-Sixties, until Pullman became one of the first to arouse in the American public an inclination for luxury. The notion endures, even today, that every person who travels is entitled to a minimum of comfort. This standard — a coach class with fully adjustable seats — no other country has rivaled.

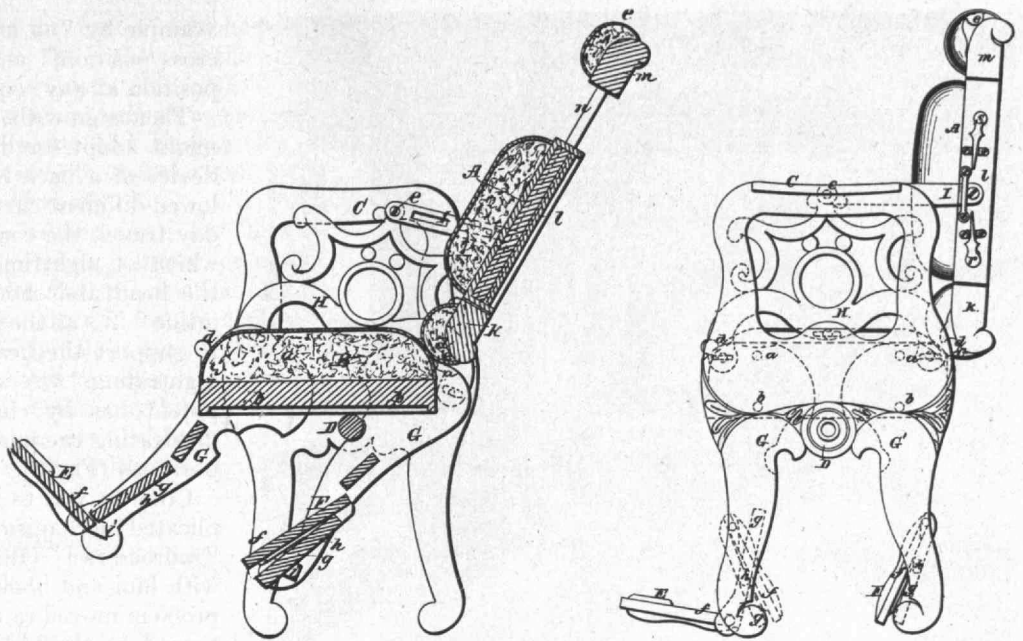


Fig. 9. An adjustable railroad seat of 1858, with hinged footrests and mobile back rests and head-rests

As the cause which had greater weight than all the others in developing comfort in American travel, we may point to the fact that the energetic construction of American railroads in the second half of the Fifties coincided in time with the efflorescence of patent furniture. It was a fortunate era, eager with the spirit of pioneering and enterprise, when men did not fear either to take chances or to answer with their own person.

THE COACH AND THE ADJUSTABLE SEAT

The American coach of the Forties was simple; yet it started with a dignified conception of man and in the quest for comfort (Fig. 1). Technically described, seat and back rest became independent of one another. True, the back consisted of no more than a bar, a prop for one's

spine, but a mobile bar which the passenger could swing over so that he might always sit facing the direction of travel. In pattern this swing bar was nothing new. Placed before the hearth, the Gothic swing-bar bench of the Fifteenth Century, shown in Fig. 2 and in the frontispiece to this issue, allowed one to sit with either one's face or one's back to the fire. The swing backs found today on American trains and streetcars derive from this simple rail of the Forties, which at the same time opened the way for the future mobility of the railroad seat. Soon afterward, the Fifties were to develop in rapid sequence whole series of solutions, often fantastic.

Starting from the swing back, the earliest patents (1851) ⁶ contemplated means of setting the back rest for height as well as for inclination. It became adjustable, for

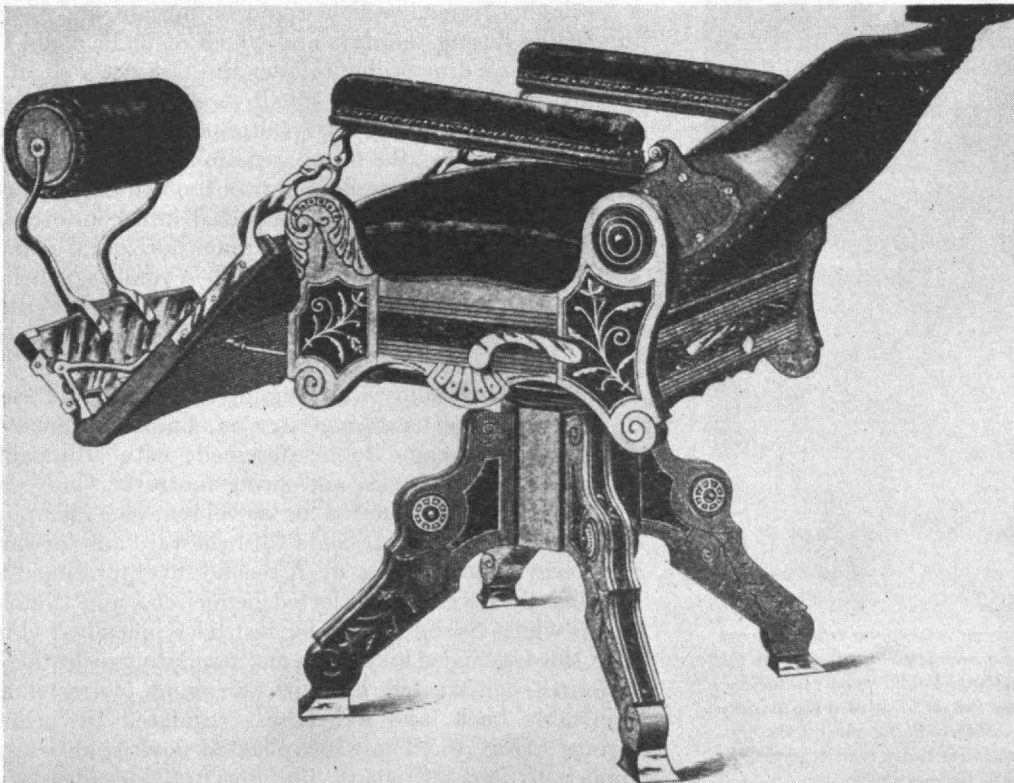
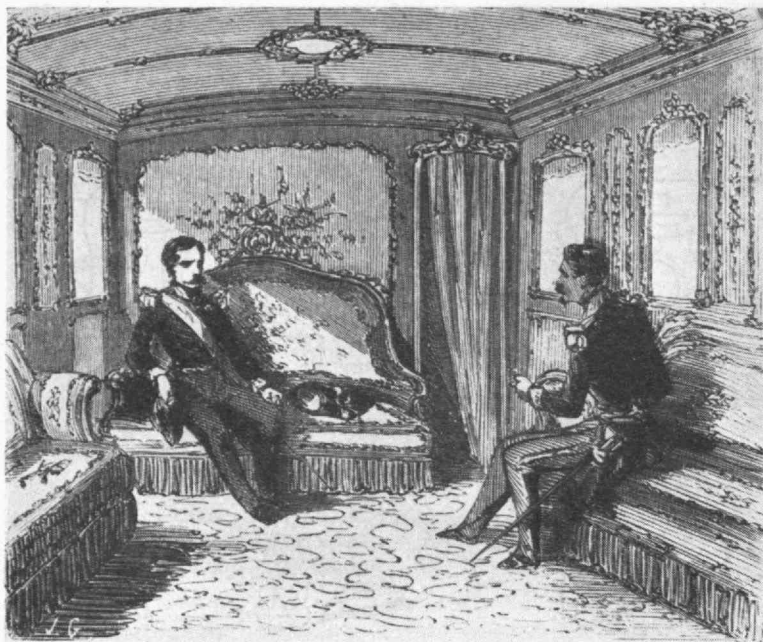


Fig. 10. A barber's chair of 1888. Whether in barber's chair, railroad seat, or drawing-room furniture, everywhere at this time comfort was sought through active adaptation to the body.



Coupe du salon.

L'illustration, Paris, 1857

Fig. 11. The "salon" car which the Chemin de Fer de l'Est offered Napoleon III in 1857. To enjoy comfort in traveling was regarded in the Fifties as a prerogative of the emperor. He is seated in his "place d'honneur"; the entire outfit is that of a "salon" on rails and, with its rigid furniture, is not at all adapted to the exigencies of travel.



Fig. 12. Parlor-car accommodations in an express train between Chicago and Kansas City, 1888, as depicted by a card in the Bella C. Landauer Collection of the New-York Historical Society. To enjoy comfort in traveling became the prerogative of the wealthy in America after the late Sixties. The revolving chair with high back rest and extending footrest had originally been regarded in America as appropriate for everybody.

example by "an arrangement of two levers in a cross position," and was secured "firmly in its position at any required angle" ⁷ (Fig. 5).

Thence grew the desire to build seats that one might adapt for day or night traveling by the device of a back rest whose front and rear followed different curves. In its normal position, for day travel, the convex side supported the spine, whilst at nighttime the concave side supported the head and shoulders — "the outside turned inside . . . at the same time raised high enough to support the head and body equally well for nightriding." ⁸ A small advertisement for this patent has by chance been preserved, clearly illustrating the adaptation of the day and night positions (Fig. 3).

Comfort was to be attained, whether by complicated mechanisms or by simple devices like the "railroad rest" (1857) that the passenger brought with him and hooked on (Fig. 4). Soon another problem moved rapidly to the fore, and attention turned to the convertible armchair. What had originally been invented for invalid chairs was now to be transplanted to every railroad seat.

Toward the close of the Fifties, inventors seemed possessed with the idea that the railroad seat, within its narrow space, must be made as comfortable, as adjustable, as convertible as was humanly possible. Not satisfied "to adjust the seat to any position required," ⁹ they were ambitious to make "the seats . . . adjustable for night travel so as to form a comfortable berth," ¹⁰ that is, to transform seats into beds with no loss in numbers. It was like squaring the circle, and proved insoluble. But there is something appealing in these often freakish ideas: a desire to find the democratic solution that will allow everybody to enjoy an equal share of comfort.

Everyone was entitled to a bed. One inventor proposed a "swinging frame," which would be upright and reach the ceiling during the day, and which at night could be lowered like a drawbridge to offer the traveler a slightly inclined plane on which he might stretch out. ¹¹ Another suggested "constructing every alternate seat in two distinct parts" — one, the frame, remaining fixed; the other being raised on guiding columns or posts. "In this manner the seats are enabled to be converted into comfortable double sleeping couches situated upon horizontal planes at different elevations, the backs of the several seats being thrown back and sustained . . . to effect this result." Thus the passengers would sleep in two tiers, which overlapped like the tiles on a roof ¹² (Fig. 8).

A whole string of inventors, mainly around 1858, ¹³ tried to devise railroad seats as, later on, barbers' chairs or dentists' chairs came to be designed: with adjustable headrests, hinged backs, and swing footrests. One — as early as in 1855 — mounted his swivel seat on a clamping disk carried by a post. It could tilt backward and forward like a bicycle seat ¹⁴ (Fig. 6). A second inventor aimed at mobility by a system of slotted hemicycles and thumb-screws whilst he slid out the leg rest telescopically ¹⁰ (Fig. 7). A third balanced his seat on an "oscillating pedestal." ⁹ A fourth constructed his with swinging footrests, an adjustable back, and a headrest regulated by helical springs ¹⁵ (Fig. 9). These complicated devices also were applied to barbers' chairs, but not until decades later

(Fig. 10). A simplified form of this type of armchair with extensible footrests appeared in the Eighties in the parlor car, destined for wealthier passengers (Fig. 12). It was then in current use: An advertisement shows a gentleman traveling at ease between Chicago and Kansas City in 1888. The patents of the Fifties intended the comfort of their seats to be shared by everybody.

The attempts pile up, too numerous to list. The inventors were determined to conquer comfort for travel, to let each passenger be free to shift his position at will. Many of these types were found unfit for practical use, yet they were alive with an original, savage, mechanical fantasy that disdained the hard and fast, the clinched and riveted, that aspired to realize anything, even the impossible. These railroad seats are the Jules Verniads of furniture. As a totality they bear within them the seed of a future development.

(To be continued)

References

¹ As outlined in *Space, Time and Architecture*, page 17 ff., we distinguish two categories of historical facts. One category we call "constituent," the other we call "transitory." The distinction becomes necessary if one sees the historian as not exclusively concerned with single styles and periods and with the comparison of their similarities and their differences: if one sees history, like biology, as concerned with the problem of growth and development — not to be confused with progress. Certain tools of analysis must be granted to the historian, and he must use them with care and discernment. Thus he draws a line around the short-lived facts; those performances that lack creative force and invention. They are the "transitory" facts. For contemporaries they may hold the fascination of a fireworks display and succeed in taking over the center of the stage, as did the ruling taste in painting, architecture, or furniture during the Nineteenth Century. The "constituent" facts, on the other hand, are marked by creative force and invention; by accumulation and accretion they form the core of historical growth. Surveying the Nineteenth Century, the historian who has accepted history as a problem of growth is inevitably led to find in patent furniture the constituent furniture of its period. To appreciate its character fully, its ties with the late Gothic period have to be laid open. Constituent and transitory facts are closely connected with typological research into history.

² At least from the aesthetic point of view. The *Illustrated London News* of 1851 does not mention the Colt revolver but describes and illustrates each ornament of these other objects, worthless today from any point of view whatsoever.

³ Official catalogue of the United States exhibitors, Exposition Universelle, Paris, 1878.

⁴ Quoted in *Space, Time and Architecture*, page 263.

⁵ *Pullman News* (Chicago: October, 1940), page 43.

⁶ Three United States patents were issued in the year 1851: No. 8,059, April 22; No. 8,508, November 11; No. 8,583, December 9.

⁷ United States Patent 8,508, November 11, 1851.

⁸ United States Patent 13,471, August 21, 1855. Compare also United States Patent 12,644, April 3, 1855, which, however, did not use the differentiated curving.

⁹ United States Patent 21,178, August 17, 1858.

¹⁰ United States Patent 21,052, July 27, 1858.

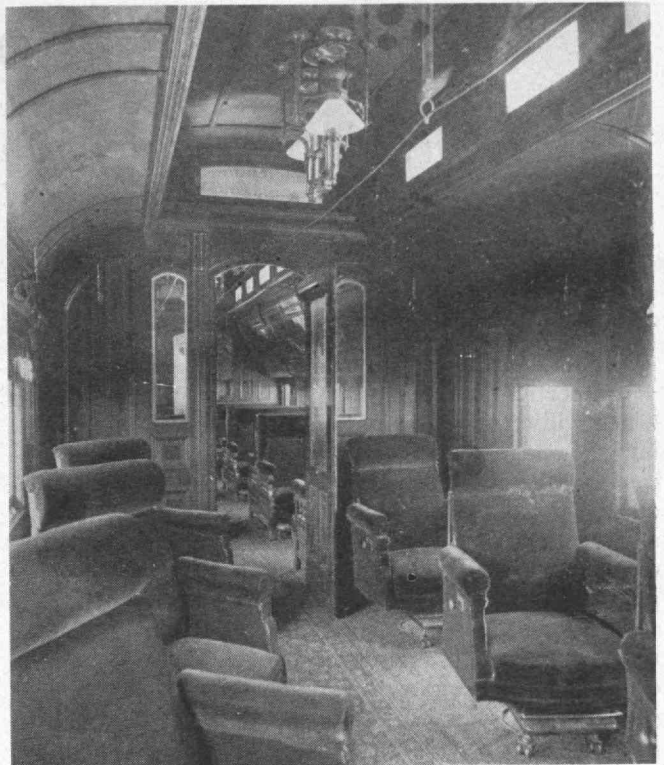
¹¹ United States Patent 21,870, October 26, 1858.

¹² United States Patent 21,985, November 2, 1858.

¹³ In 1858, thirteen patents were issued for improvements in car seats.

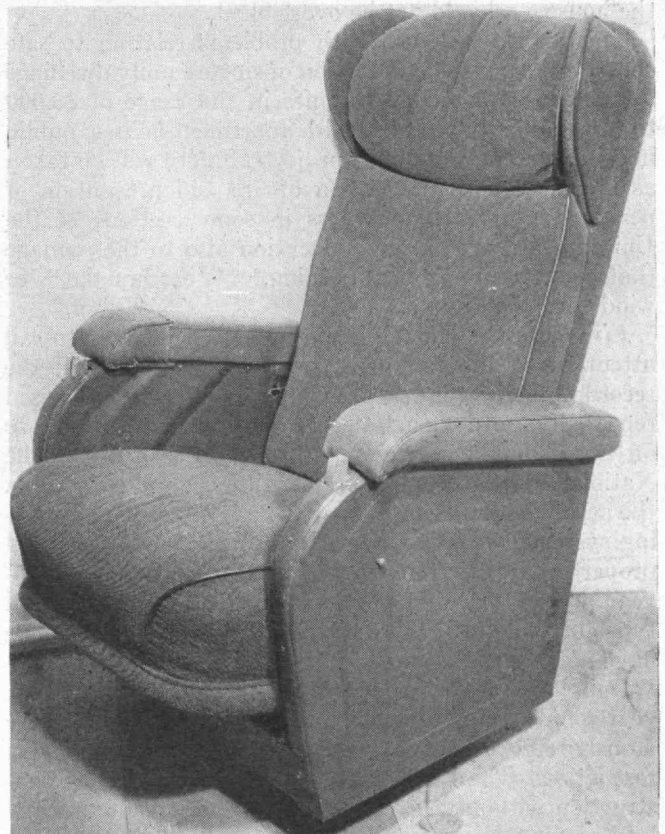
¹⁴ United States Patent 13,464, August 21, 1855.

¹⁵ United States Patent 19,910, April 13, 1858.



Pullman Company

Fig. 13. The first Pullman drawing (parlor) car, 1875. The revolving and adjustable armchairs with their simple outlines are as far from the exuberant forms of the Nineties as from the overstuffed streamliners of the 1930's.



Douglas Aircraft Company, Inc.

Fig. 14. Adjustable folding chair used in airplanes, 1936. Although well designed for lightness of material and in the best tradition of patent furniture, it suggests a trend to artificial heaviness of appearance — the outcome, it would seem, of the "streamlining" that, in so many areas, perpetuates the showiness of Nineteenth Century ruling taste.

Safety in Postwar Homes

In Plans for the Development of Dwellings, Safeguards for Life and Property Must Not Be Overlooked

BY FRANK L. AHERN

IN time of peace it was wise to anticipate some of the problems to be met in the event of war; it is equally important to be prepared now to meet conditions which will confront the nation after the war. One of the important problems for the postwar period will be the construction and marketing of houses which will be adequate from the standpoints of quality, quantity, health, and safety. It is the purpose of this article to emphasize some safeguards which, if given due consideration in planning, will reduce losses of life and property.

Some enterprising promoters may be building up in the minds of the public a false hope of extraordinary things to come in housing, notwithstanding the fact that over a period of 100 years, few improvements of importance have been made in houses other than in their equipment and utilities. It is to be hoped that new materials and methods will be developed and that they may be as satisfactory as those which have been used in the past and have stood the test of time. In the development of new materials, equipment, and methods, their safety in the finished product — the house — should not be overlooked.

This article will deal with problems relating to safe construction and safe operation of single-family dwellings for people with annual incomes in the range of \$3,000 to \$10,000; it will not deal with apartment houses, public housing, or slum clearance projects. Safety will be taken as including both prevention of fire and prevention of personal injury. Homeowners in some sections of the United States should give attention also to the damage that may result from lightning,^{9,10,*} earthquake,¹¹ or windstorm.¹²

Fire Hazards. Though it may seem elementary to call attention to the fire hazards of heating systems, the record indicates that such hazards should be emphasized repeatedly, until enough people are sufficiently conscious of them to make corrections. Fire losses reported by the National Board of Fire Underwriters, as illustrated in the accompanying chart, show that those caused by heating systems account for nearly 20 per cent of the total property damage from fires of known cause for the 16-year period 1927 to 1943. This experience applies to all types of buildings; the data relating to dwellings alone have not been segregated.

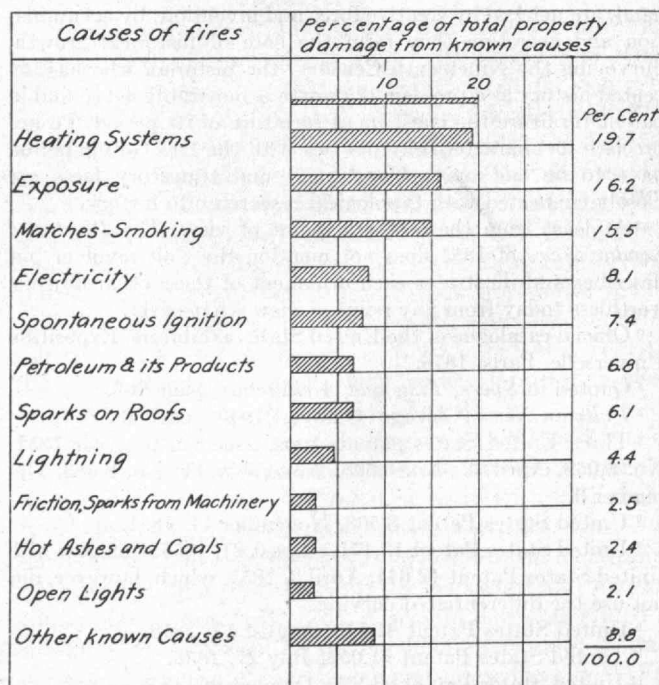
Building codes have been the subject of attack in recent years, but the experience under the Lanham Defense Housing Act presents an argument in favor of reasonable restrictions. The Lanham Act permitted emergency construction without regard to Federal, state, or municipal laws, ordinances, rules, or regulations, in order that construction might proceed with the least possible delay. Under this act many buildings were erected in which established standards were not followed. As a result, large expenditures were required to correct faulty details.

* Numerals refer to bibliography at the end of the article.

Obviously, though communities which have building codes may be able to control the fire hazards, communities which have no such codes or other adequate control are likely to have difficulty in obtaining safe construction.

A good word must be said for brick chimneys, despite the fact that some are built faultily and others develop faults through lack of maintenance. However, for the homeowner who wishes peace of mind, the safest installation so far is believed to be a brick chimney on a masonry foundation, constructed in accordance with recognized standards.¹⁶

Much effort has been expended in recent years in the development of metal flues to be used instead of masonry chimneys in temporary housing. Some California cities adopted metal flues after the San Francisco earthquake and fire of 1906, when many brick chimneys fell. Observation of metal flues has led the writer to the conclusion that if danger is to be avoided, careful maintenance of them is essential. New types of metal flues have been manufactured with porcelain enamel inside and out. Asbestos insulation is provided where the flue passes through combustible construction. The so-called incombustible insulation was found in some projects to contain combustible material in such quantity that the outside wrapping of paper, with pyroxylin lacquer finish, was



Property damage from known causes of fire in the continental United States as reported to the National Board of Fire Underwriters for the 16-year period from January 1, 1927, to January 1, 1943. Incendiary fires were not included in the data from which the chart was compiled.

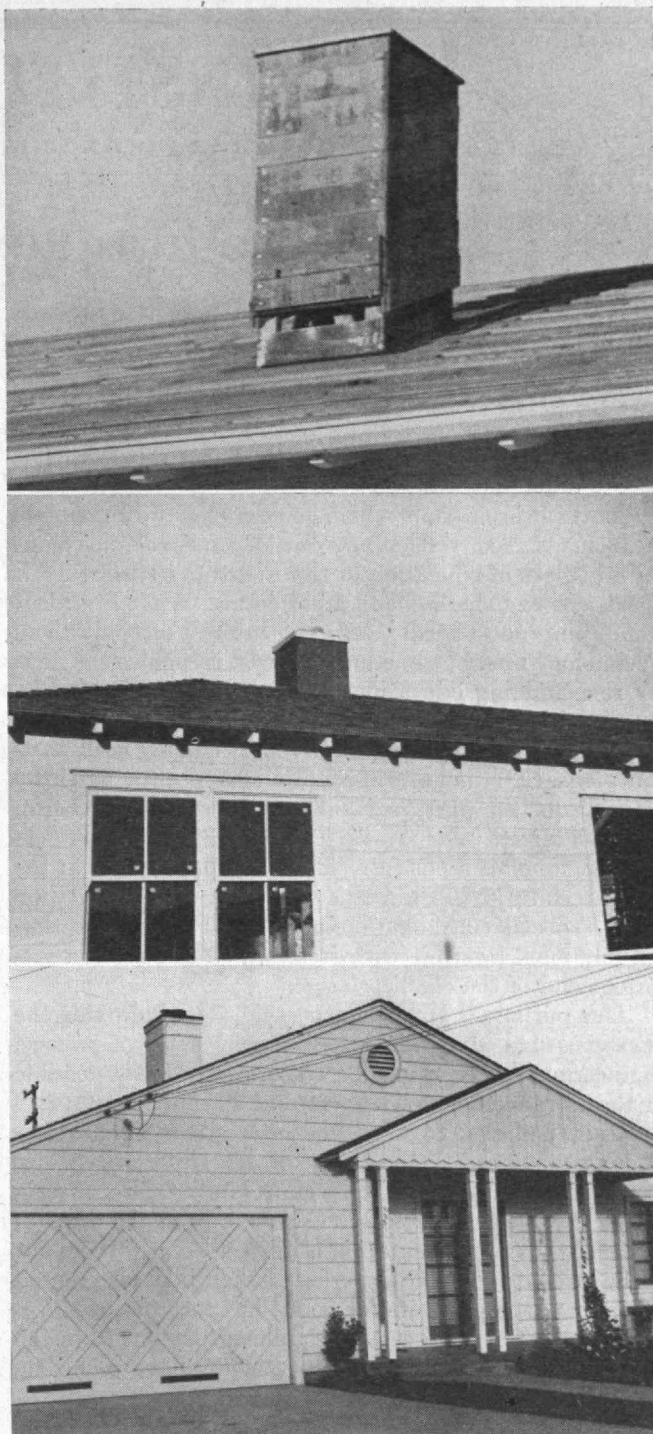
ignited. For safety, a truly incombustible insulation must be used for this type of flue; its thickness will depend upon its insulating quality. Corrosion of metal due to chipping of the enamel has been reported. This would permit serious deterioration. The enameled flue must be handled with care. Several modifications have been made as the result of experience with metal flues in wartime construction. One manufacturer has had his flue approved by the Underwriters' Laboratories.

In some recent construction there has been a tendency to omit the basement and to install the heating unit in a compartment which usually provides inadequate clearance between the furnace and the walls of the compartment. The compartment idea has other disadvantages: For example, maintenance of a clean environment is more difficult, because of accumulations of dust or ashes, and there is a further hazard from glowing coals falling on a combustible floor when ashes are removed. Installing the furnace in the basement is much safer, and more satisfactory in other ways. Adequate clearance can then be provided to avoid fire hazard and also allow room to make repairs when necessary. A basement is justifiable also for legitimate storage.

The safe clearance between heating appliances and combustible construction is of major importance in fire prevention. It has been the subject of research at the National Bureau of Standards¹⁸ and at the Underwriters' Laboratories.⁶ The results of the research at the Underwriters' Laboratories were used in compiling the tables of recommended clearances which appear on pages 205, 206, and 208 of the Building Code Recommended by the National Board of Fire Underwriters, 1943 edition.¹³

For coal- and oil-burning furnaces, it is good practice to place the furnace so that the length of the draft pipe from the furnace to the chimney will not be excessive; three to five feet are believed to be a reasonable length for the draft pipe, so installed that unnecessary turns and bends are avoided. The space between the top of the furnace and the floor construction over the furnace should not be less than 18 inches. When the draft pipe projects above the top of the furnace, the clearance between the top of the draft pipe and the floor construction should be not less than 18 inches, unless special insulation is provided. No other combustible construction should be within five feet of the heating unit. For gas furnaces, the space between the top of the draft pipe and combustible floor construction over the pipe should be the same as that for coal- and oil-burning units, namely, 18 inches. The other space requirements may be reduced for modern gas furnaces, but it is usually possible, and certainly desirable, to allow a generous clearance between any heating unit and surrounding combustible construction or combustible storage.

If left in place during the summertime, the iron smoke pipe connecting the furnace to the chimney may become corroded and softened. To give attention to this and other details prior to the heating season is a good investment in safety. The smoke pipe, for example, should be removed and cleaned. It should also be examined and if pinholes or soft spots are observed, a new one should be installed. The substitution of metal draft pipes, enameled inside and outside, in place of the usual galvanized iron type should result in less frequent replacements. Accumulated scale on the inside of the furnace reduces the efficiency of the heating system; it results in waste of fuel, as the



Nonstandard chimneys — three aspects. Top: a metal flue supported on metal brackets is housed in a wood-sheathed enclosure. Middle: building paper and wire fabric have been applied to such an enclosure. Bottom: stucco applied to the wire fabric gives the enclosure the appearance of a masonry chimney.

fire must be forced to obtain the desired heat. Cleaning of the furnace prior to the heating season is recommended, not only to keep the boiler in good condition but also as a safety as well as an economy measure. Accumulations of soot in the chimney should be removed also.

The location of cooking ranges in relation to combustible walls will vary with the type of range used. For coal or wood ranges, the space between the range and combustible walls should be 24 inches, and the space between the ceiling and the top of the stovepipe connecting the stove to the chimney should not be less (Continued on page 52)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

The Institute Looks Ahead

In a Notable Report, President Compton Calls for Action Now on Planning for the Postwar Years

IN an annual report of extraordinary interest, President Compton on October 11 presented to the Corporation a postwar program in which he discussed the immediate problems of reconversion and outlined far-reaching plans for advances in education in the Institute's special fields of science, engineering, and architecture. What President Compton proposed will be of great interest not only to all Technology men but to educators who recognize the need for re-examining educational processes to meet the demands of a changing society. The Review presents that section of President Compton's report dealing with postwar plans. Later issues will contain his report on Institute activities of the past year and statistical information of special interest.

In opening his report, President Compton said that the present state of the war and the logic of our situation justify special consideration of postwar plans but that nothing must interfere with steps which can speed a victorious end of the conflict.

"Our purpose," Dr. Compton said, "is to provide the finest possible education in our special fields of science, engineering, and architecture; to be as effective as possible in the advancement of science and its important practical applications; to mold the interests and characters of our students to the best type of American citizenship; to co-ordinate and direct these efforts in the spirit of service to the public. These have always been the aims of M.I.T. What implementation is needed to carry them out in the foreseeable postwar period? I shall take for granted that our purpose is not 'for good' but for 'the best.'"

Dr. Compton cited certain significant lessons from the Institute's current war experience which have a bearing on the program for the future, saying:

The staff and laboratories of M.I.T. have contributed enormously to leadership and achievement in the technological aspects of the war. Devices developed here have contributed importantly to success on every front and on every sea, and commercial war production of them has run into exceedingly large figures. Staff members have held high advisory, executive, and operating posts in the technological war organization all the way from the United States to the Southwest Pacific in one direction and to the European theater and even Russia in the other. . . .

In war training of Army, Navy, Air Forces, and civilian personnel, the Institute has played a notable role. In a few important fields it has been the only, or the principal, training center in the country. In other fields it has taken its share along with many sister institutions.

Although its war research and training activities have been on a strictly cost basis, the Institute has made other very substantial financial contributions to the war effort. For example,

it has freely given the government the services of many members of its staff, whose salaries are equivalent to an outright contribution of several hundred thousand dollars. . . .

I mention such things because they prove the value to our country of this type of institution in a time of emergency. Its war value is parallel with that of a fleet or an army. But of course its principal value is in the year-by-year life of our country and resides in the lives and achievements of our 35,000 Alumni.

This is the institution for whose performance and future we of the Corporation are responsible. I submit that its value to our country justifies maintenance of it on the highest possible plane of effectiveness, that we are justified in asking for support of it on this plane, and that we have an obligation to take the necessary steps to insure such effectiveness. . . .

Staff salaries. First in importance I would place more adequate staff salaries to meet increased living costs. Over a year ago the United States Department of Labor, as I recall it, announced that living costs had risen over 16 per cent during the war. Now two War Labor Board panels report living cost increases of 25 to 43 per cent since January, 1941. Even before the war, I pointed out that our salary scale was below that of several other educational institutions. A man valuable for our staff is usually of a type in demand by industry or in professional practice. We cannot hope to maintain our staff at the highest level with too large a salary differential. The war has accentuated the difficulty. Prices have risen and will probably rise farther after the war. The national income has risen to unprecedented levels, but academic incomes on the whole have remained constant. Thus the academic profession has slipped downward, relative to the country as a whole, and will slip farther unless something is done. . . .

Significant technological opportunities. "We must handle effectively certain great opportunities within our grasp," Dr. Compton declared. "I refer to aspects of our regular educational and research program which have acquired new importance as a result of new technological developments or social requirements. . . ." Elaborating on this subject, he continued:

During the last few years there have been extraordinary developments in electronics, instrumentation, methods of propulsion, mechanisms for control of machinery, calculating devices, energy sources, plastics, organic chemistry, food technology, mechanics of materials, hydraulics, applied mathematics, and other fields. In most of these, members of our own staff have been leaders and in all of them we have men of high competence. They are all destined to play important roles in the scientific and industrial activity of the near future. They all fall within the scope of our educational and research programs. Students trained in them will be in demand and advances in knowledge of these subjects will be valuable. We should emphasize them promptly and vigorously.

To exploit these opportunities, the Executive Committee has recently made these preliminary moves: authorized the establishment of an electronics laboratory as a joint enterprise of the Departments of Physics and Electrical Engineering, and appropriated initial funds; set aside for further work in instrumentation a substantial fund received as a result of past achievement in this field; authorized the construction of a special laboratory

for study of new propulsion devices, with provision for initial equipment and operation; undertaken an important investigation of plastics on behalf of the plastics industry; appointed Arthur C. Cope to the new post of professor in charge of the Division of Organic Chemistry; established the Samuel Cate Prescott Laboratory of Food Technology under the direction of Professor Bernard E. Proctor, '23; appropriated funds for special work on the mechanics of materials; made similar provision for expanded activity in applied mathematics; made provision to house a desired hydraulics laboratory in the near future. These are highly important moves, but I emphasize that they are only introductory to the possibility of really large accomplishments.

Dr. Compton predicted that architecture, after a hard time in the depression and during the war, is destined for activity ahead with remarkable opportunities for young men.

Increased enrollment. Commenting on the prospects for enrollment in the future, Dr. Compton said that the plan of stabilization for a selected enrollment of approximately 3,100 had been proved advantageous. He added that when the war is over, the Institute will have some new educational facilities, notably the Chemical Engineering Building and the permanent section of the quarters now assigned to the Radiation Laboratory. Returns from questionnaires sent to former students now in the armed forces, Dr. Compton said, indicate that practically all who entered the service before being graduated plan to return to complete their Courses. Many graduates wish to return for postgraduate study, and undoubtedly there will be many applicants from demobilized soldiers who have not previously attended the Institute. There are also indications of a large number of new civilian applications for admission, including a surprisingly large number from foreign countries.

It appears that the Institute should now aim at a normal stabilized enrollment of about 3,600, based on a freshman class of 700 and a graduate school of 850; that during about three postwar years the total should be raised to approximately 4,500, because of returning soldiers; and that the Institute should operate on the accelerated three-term-year basis for veterans. Dr. Compton said that approximately \$300,000 will be required for reconversion, readjustment of facilities, and some new equipment.

Student housing facilities. The need for additional student housing facilities was emphasized in Dr. Compton's report; with the likelihood of an increase in registration,

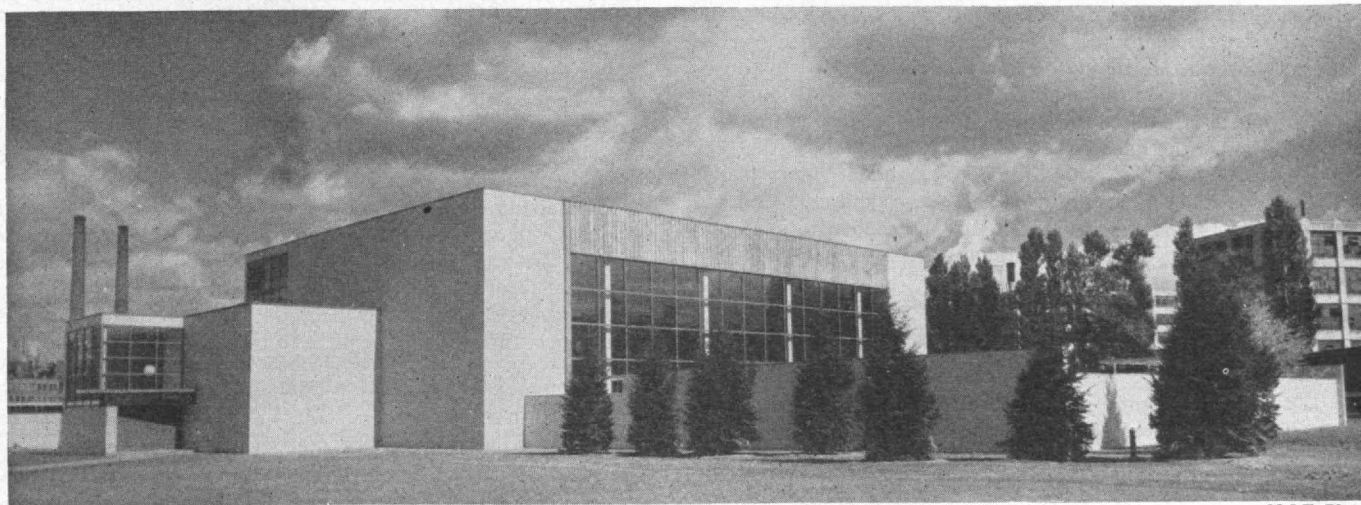
such facilities are not only desirable but urgent, he said. He recommended additional dormitory facilities for at least another 200 students, constructed along the lines of what is now well known as the "house plan." Such a unit would be complete in living accommodations, including dining service and reading, recreation, and social rooms, and the house would have a younger member of the staff, possibly with his family, as a guide, philosopher, and friend to the students. The success of the Institute's present "student house," provided by an anonymous benefactor for the benefit of worthy students who operate it on a co-operative plan, prompted Dr. Compton to suggest that another student house would be a most altruistic project. He also cited the need for special living quarters for the Institute's women students, the number of whom has gradually increased during the past 20 years.

Gymnasium unit. One important need after the war, Dr. Compton stressed, is the construction of at least a second unit of the Institute's ultimate gymnasium project, the first unit of which was the Alumni Pool. The new unit will cost approximately \$300,000 or \$600,000, depending on which of two alternative plans is selected. The larger unit could be used for convocations, such as graduation exercises and other public meetings.

New Library with expanded functions. "Both the Visiting Committee on the Library and the Faculty Committee on the Library have repeatedly pointed out the defects of the present Central Library," Dr. Compton said. "We have a good group of well-organized, working branch libraries for the various Departments, but the Central Library was never designed for the purpose, is badly outgrown, never was adequate, and will continually be less so." The report further declares:

The Visiting Committee visualizes a new library building, located near the center of student traffic between Building 2 and the Walker Memorial and connected cleverly with both. To give optimum library service, it should contain the most modern facilities of the library art, such as microfilm reproduction and viewing, and automatic selection and delivery of card catalogue information. In fact it might well become a pioneering, or tryout, center for the ingenious mechano-electrical aids to the storing and distribution of printed information, the development of which was just getting under way when the war broke out.

In addition to a great technological library serving M.I.T. students and staff and the New England region generally, the



M.I.T. Photo

The Alumni Pool, completed in 1940 as first unit of the Institute's athletic center. The building of at least a second unit Dr. Compton declares a "requirement of the 'prompt must' category after the war."

plan contemplates features which will make this library the cultural center of the institution. These include seminar rooms and headquarters for the Division of Humanities, attractive rooms for both study and recreational reading, music rooms, a little theater, and exhibition space for library and art treasures, including the remarkable Dard Hunter Paper Museum. Such facilities would contribute wonderfully to the wholesome enjoyment of college life by successive generations of students and to their education for enriched and well-balanced lives.

Through several years of study, the Visiting Committee and its consultants have developed this plan. It is sound and thoroughly worth while. Its realization should now be recognized officially as one of the major objectives in the Institute's postwar program. As evidence of this recognition, the Executive Committee has appointed Professor John E. Burchard, '23, to be director of the libraries. . . .

Divisions of basic and professional instruction. While the Institute's educational program makes no formal distinction between instruction in the first two years and that in the later years in the educational program, Dr. Compton recommended that the Institute formally recognize the particular problems of the first two years of basic instruction by appointment in the Faculty of a Supervisor of Basic Instruction. He called attention to the fact that the Institute has, in effect, a division of basic studies extending through the first two years, and a division of professional studies extending through the third and fourth undergraduate years and into the Graduate School. The program for the division of professional studies is set by the individual professional Departments, whereas the work of the first two years is more or less the "common interest" or "common property" of all the Departments. Dr. Compton continued:

. . . There are problems rather peculiar to these first two years — problems of selection and guidance of students, problems of handling effectively large classes with many instructors and many sections, problems of supervising instructional work of many assistants in the laboratory and some even in the classroom, problems of training new instructors and developing the best possible educational programs. One reason why this is so important in the first two years is that the students there have usually not yet reached the stage at which the urge of professional interest accomplishes for them far more than any special pedagogical performance by Faculty members. For this reason I would recommend that the Institute formally recognize the particular problems of the first two years of basic instruction by the appointment in the Faculty of a Supervisor of Basic Instruction. This supervisor should not relieve the Faculty and Departments from interest in, and responsibility for, the work of these two years. He should serve rather as a focal point to mobilize and render more effective this interest. He should not control the instructional work of the first two years because that is a function of the Faculty as a whole. He should, however, seek to improve teaching procedures and student performance through his study of the problems, his advice and criticism, and his initiative in bringing to the Faculty or administration situations in which action should be taken. . . .

Education of superior students. One of the important subjects discussed at considerable length in the President's Report is the education of superior students:

. . . In a democratic society there is a responsibility to the poorer student as well as to the better student, especially since the poorer student probably predominates greatly in numbers. Good education for the masses is essential to stable society. It has been an essential feature of our national program since the founding of the Republic. There is, however, a legitimate question as to the level to which each type of education should

be brought and as to the type of responsibility of any given educational institution. I take it, for example, that our state universities and other institutions wholly or principally financed by public funds have a basic responsibility to provide educational facilities for every category of young man or woman whose education will be beneficial to the community. On the other hand, it is certainly proper and in the public interest that some institutions, including those under private management, should have the privilege of concentrating on special types of education. Certain institutions may undertake to provide only the most advanced type of educational program. Others may go to the opposite extreme and specialize on education for persons of lesser natural endowment, including even those who are physically or mentally handicapped. There is room and real need for all of these types of educational effort.

The Institute has for many years striven for the ideal of providing only the highest attainable type of education in its technological fields. A corollary to this policy is, as an ideal, to have only good teachers and good students. To a staff imbued with this ideal, the entire educational effort takes on the aspect of an "honors program." The admission of any educational element which is admittedly less than the best obtainable, whether in staff or curriculum or teaching procedure, tends to be viewed by our staff as an admission of failure and almost as a moral lapse in the line of duty. It is partly for this reason, I believe, that our staff has on the whole not been excitable over any one specific plan for dealing with superior students. Nevertheless, the subject has really received exceedingly careful and constructive consideration, and I would enumerate the following achievements of very distinct value, which have enthusiastic backing as meeting the situation in specific fields.

Three Courses — Electrical Engineering, Mechanical Engineering, and Marine Transportation — conduct co-operative courses with certain important industrial organizations. These combine the purpose of handling superior students with the objective of giving these students a valuable educational experience in contact with practical problems of the industries in which they are most interested. One Department, Chemical Engineering, attains essentially similar objectives through its program of practice schools, which are operated with co-operation of three important types of chemical industry. Three Departments — Electrical, Mechanical, and Aeronautical Engineering — conduct honors courses, in which superior students are given special freedom and responsibility. The Departments of Physics, Chemistry, Mathematics, and others deal in similar manner with their superior advanced students, though not under the formal label of "honors. . . ." In addition to these, there was formerly the very successful Research Laboratory of Applied Chemistry at the postgraduate level in the Chemical Engineering Department. This was discontinued during the depression, but I believe it should be re-established just as soon as circumstances permit.

These special programs have generally given excellent results. Each appears to be well suited to the Department of study in which it is established, with the additional factor that the enthusiasm of the Department for its particular program is one of the most important requirements for its success. . . .

The Faculty committee on the study and handling of superior students will again go into action once the war emergency has passed. Postwar conditions will differ somewhat from pre-war conditions, and it is reasonable to expect that new opportunities or improvements over the methods that have thus far been found successful may be possible in the near future. . . .

National security. "Realistic planning of the future activities of the Institute," Dr. Compton said, "must include consideration of its contributions to national security. You may be surprised by the magnitude of these contributions, measured budgetwise, since the founding of the Institute. Since its establishment in 1861 the aggregate expenditures by M.I.T. for all operating expenses

total \$210,000,000 in round numbers. Of this amount, a total of \$100,000,000 has been spent for purposes of national security by direct contract with Army, Navy, or other governmental agencies. Thus almost 50 per cent of all the operations of the Institute since its beginning have been directly concerned with national security."

Dr. Compton emphasized that the temper of the times justifies the expectation that the Institute's contribution to national welfare will continue to be substantial. Prior to this war, Technology maintained a postgraduate educational program in various scientific and engineering specialties for certain branches of the War and Navy departments. It appears certain that this activity will continue after the war, with increased emphasis and in new fields. The Institute's assistance in developing various important instrumentalities of war is also expected to be continued and expanded.

Commenting on government plans to consider the establishment of one year of military training for young men beyond the age of 18, Dr. Compton suggested that if this plan becomes a national policy there would be no point in continuing military training at the Institute during the first and second years. In this event, he proposed that the advanced Reserve Officers' Training program, which has been very successful in the past, be continued. He also expressed the hope that if national compulsory military training is adopted, a naval R.O.T.C. unit will be established at the Institute.

Conversions. Turning to problems of conversion and reconversion after the war, Dr. Compton spoke of the various buildings that have been constructed during the emergency, adding that the Institute would have an interest in acquiring certain structures under suitable terms. Summarizing the requirements of the proposed postwar program, Dr. Compton estimated that the Institute would require \$4,000,000 for additions to plant and approximately \$1,000,000 a year for increased budget.

"This is a brutal way of stating what is really needed to provide brains and services," said Dr. Compton. "How can this be secured?" He then pointed out:

Increased enrollment will provide some additional income. We can re-examine our tuition charges on the basis of increased living costs and national income. We can count on considerable support of some projects through industrial or governmental contracts. But all reasonable and proper income from these sources will be inadequate. One gift of \$25,000,000 would take care of the situation, but "mysterious Mr. Smiths" like George Eastman are as rare in numbers as they are in spirit. . . .

We have enthusiastic hope for this institution's effective future. We have science in large quantities, not only in the work of the institution but in the spirit with which its opportunities are analyzed and its affairs administered. . . . Over against this hope and faith in the future, we cannot fail to recognize some very serious problems facing us, and all other educational institutions, and many other bulwarks of our society in the years to come. . . . On the encouraging side I would urge that the value, effectiveness, and prestige of the Institute have never before been at so high a level. This is certainly a strategic vantage point from which to inaugurate the next advance. . . .

Director of Libraries

TO the newly created post of director of libraries, the Corporation last month appointed Professor John E. Burchard, '23, director of the Bemis Foundation. The significance of the program for the direction of which this



M.I.T. Photo

DIRECTOR OF LIBRARIES

John E. Burchard, '23, named to a newly created post

administrative office has been created is discussed in full detail by President Compton in an important section of his annual report. Professor Burchard began his new duties immediately, although he will continue for the duration to give a large portion of his time to the important war work on which he has been engaged for the past four years.

"As director of libraries," President Compton said in announcing the appointment, "Professor Burchard will assume administrative direction of the Institute library and museum system, but he will have as his immediate and major task the planning of a broadened program of library service. Included in this program is the development of plans for a new library building for which the Institute hopes to be able to secure the necessary funds and which will serve not only as a great central scientific and technical library but also as a center of the humanities and a broad program of cultural activities at Technology. The plan envisages the Institute libraries' becoming a great technical library service center for this part of the country and contributing substantially to the cultural activities of the Institute community, especially in the field of the humanities.

"The appointment of Professor Burchard leaves unchanged the present able staff of the Technology Library headed by William N. Seaver, Librarian, and is intended to assure adequate emphasis on the new program by placing it under the direction of a policy-making administrative officer analogous in position to that of a dean in the instructional organization."

Professor Burchard brings to the new post of director of libraries exceptional qualifications based on broad experience in business and technical fields and a wide affiliation with scientists, architects, and engineers. Long a student of functional design, he is well fitted to appraise

the requirements of a great library, and his own experience in research, both before and during the war, gives him an unusual grasp of the scope and application of the literature of science and the complex and far-reaching service demands which university libraries must meet.

Professor Burchard was born in Marshall, Minn., in 1898. He attended the college of liberal arts of the University of Minnesota for three years, interrupting his education to enlist in the United States Army Medical Corps. After service in the American Expeditionary Forces he was discharged in the spring of 1919 and entered the Institute. He was graduated with the degree of bachelor of science in architectural engineering in 1923, and devoted the next two years to graduate work leading to the degree of master of science in architectural engineering in 1925. During the years of his graduate work he gained valuable administrative experience as assistant to the Head of the Department of Civil and Sanitary Engineering. He also served as a part-time instructor in the Department of English.

Upon completion of his graduate work, Professor Burchard joined the staff of Bemis Industries, Inc., and in a period of 13 years became director of research, vice-president, and a member of the board of directors of that corporation and of its subsidiary, the Housing Company. In 1938 he returned to the Institute as director of the Albert Farwell Bemis Foundation with the rank of professor. Before the war he traveled widely in Canada, England, Holland, Germany, Belgium, and France for special studies.

Since July, 1940, Professor Burchard has devoted all his time to important war work, first as executive officer of a committee of the National Academy of Sciences and later as chief of one of the 18 divisions of the National Defense Research Committee. During the war he has served as member of several war committees dealing with specific naval and military problems and has headed several scientific missions to Great Britain, the Central Pacific, and the Caribbean. Since last July, Professor Burchard has been assistant chief of the office of field service of the Office of Scientific Research and Development. He is also a member of the joint committee of the National Defense Research Committee and the Committee on Medical Research to study the ballistics of wounds.

Professor Burchard has written extensively for domestic and foreign periodicals and was coauthor with Albert Farwell Bemis, '93, of *The Evolving House*. He was an editorial associate of *The Review* for a number of years beginning in 1933, and its readers will recall his many able contributions. He is widely known as a speaker and has been a guest lecturer at Princeton University, Dartmouth College, Norwich University, Black Mountain College, New York University, Carnegie Institute of Technology, and Radcliffe College.

In various professional capacities Professor Burchard has served on important committees, including the national council on housing research of the United States Department of Commerce, the board of directors of the Housing Association of Metropolitan Boston, the committee on postwar reconstruction of the American Institute of Architects, and the committee on conservation of cultural resources of the National Resources Planning Board. During the war he has served as a member of the central technical committee of the Office of Civilian De-

fense. Before the war he was a delegate to meetings of the International Chamber of Commerce in Amsterdam and in Washington.

Professor Burchard is a member of the advisory council of the department of physics of Princeton University, the advisory council of Black Mountain College, the American Institute of Architects, the American Society of Civil Engineers, the Newcomen Society of England, the American Association for the Advancement of Science, Chi Psi and Tau Beta Pi fraternities, and the St. Botolph Club of Boston. He is a former vice-president of the Alumni Association of the M.I.T.

Appointed

TWO appointments closely associated with the program of postwar activities discussed in Dr. Compton's annual report were announced recently: Arthur C. Cope, associate professor of chemistry at Columbia University and distinguished for his work in organic synthesis, has been appointed professor in charge of the Institute's Division of Organic Chemistry. Norman J. Padelford, formerly a member of the faculty of the Fletcher School of Law and Diplomacy and now a special consultant for the Department of State, has been appointed professor of international relations.

Dr. Cope, who will be on leave of absence for the duration to complete important war work, was the recipient on September 13 of the \$1,000 American Chemical Society award in pure chemistry. This award, one of the most distinguished honors in the field of chemistry, is made annually for outstanding research. The importance of Dr. Cope's contributions in the broad field of plastics and drugs was emphasized in the citation of the award.

A native of Dunreith, Ind., where he was born in 1909, Dr. Cope was educated in Indianapolis and graduated from the Arsenal Technical Schools. He then entered Butler University, from which he was graduated with the degree of bachelor of science in 1929. From that year until 1932 he carried on graduate work in chemistry at the University of Wisconsin, where he was a teaching assistant from 1929 to 1931 and a research fellow during 1931-1932, when he was awarded the degree of doctor of philosophy. His research for the doctorate was carried on with Professor S. M. McElvain. From 1932 to 1934, Dr. Cope was a National Research Fellow at Harvard University, where he worked with Professor Elmer P. Kohler. For the next six years he was a member of the faculty of Bryn Mawr College, advancing to the rank of associate professor. In 1941 he was awarded a Guggenheim fellowship for studies of the phenomenon of tautomerism. That same year he joined the faculty of Columbia University, and has been on leave of absence since 1942 to serve as a technical aide on the National Defense Research Committee, with headquarters at Columbia University. Dr. Cope has been secretary of the division of organic chemistry of the American Chemical Society since 1939.

The appointment of Dr. Padelford is part of the co-ordinated four-year program in the humanities and social sciences recently announced by the Institute. His association with Technology emphasizes the importance of international relations and associated subjects paralleling professional courses in science, engineering, and architecture, and indicates the growing importance of these subjects to our future scientists and engineers.



ARTHUR C. COPE

Professor in charge of the Division of Organic Chemistry

At the Fletcher School of Law and Diplomacy, which is associated with Tufts College, Dr. Padelford won wide recognition as an authority in the field of international relations. As a special consultant at the Department of State in Washington since 1942, he has worked on problems relating to the establishment of a new general international organization. He is a member of the special committee on inland transport. He also participated in the recent Dumbarton Oaks conference on international security and organization and is an expert on European inland waterway regulations.

A native of Haverhill, Mass., he is the son of the Rev. Frank W. Padelford and Grace Ilsley Padelford. After attending the Huntington School, he was graduated from Denison University in 1925 with the degree of bachelor of philosophy. He carried on advanced studies at Harvard University, where he was awarded the degree of master of arts in 1928 and his doctorate in philosophy in the following year. In 1928 he was appointed Ozias Goodwin fellow in international law at Harvard and held the Sheldon traveling fellowship in 1929.

Dr. Padelford was a teaching assistant in government at Harvard University from 1926 to 1929 and held a similar post at Radcliffe College for the year 1927-1928. He was appointed assistant professor of government at Colgate University in 1929 and became head of the department in 1933, serving until 1936 when he was appointed professor of international law at the Fletcher School of Law and Diplomacy. In 1940 he was a member of the faculty of the Harvard Summer School.

Dr. Padelford was a leader at the Boston Center for Adult Education from 1936 to 1939 and was chairman of the Student Volunteer Movement in 1926. He has been consultant on questions of international law for the International Missionary Council, New York, since 1930. From



M.I.T. Photo

NORMAN J. PADELFORD

Named professor of international relations

1936 to 1941 he was a research associate in the Bureau of International Research at Harvard University and Radcliffe College, and has carried on important researches in the Department of State, the National Archives, and the Navy Department in Washington, as well as at the British Foreign Office, the Public Records Office in London, England, and in the Panama Canal Zone. He has served on the Commission to Study Bases of a Just and Durable Peace, the committee on religious liberty of the Foreign Missions Conference, the advisory board of the Acción Hispánica Pro Solidaridad Continental, and the advisory council of the Masaryk Institute of New York.

Dr. Padelford is a member of the American Society of International Law, the American Political Science Association, the Foreign Policy Association, the American Council Institute of Pacific Relations, the international and comparative law section of the American Bar Association, and the United States Naval Institute. His fraternity is Tau Kappa Alpha. An extensive writer in his special field, he is the author of *Peace in the Balkans*, *International Law and Diplomacy of the Spanish Civil War*, as well as numerous articles. His latest book is *The Panama Canal in Peace and War*.

Division of Food Technology

ESTABLISHMENT of food technology as a separate division of the Department of Biology and Biological Engineering, and the appointment of Professor Bernard E. Proctor, '23, as director of the division have been announced by President Compton. The laboratory of the division has been named the Samuel Cate Prescott Laboratory of Food Technology as a tribute to Dr. Prescott, '94, whose notable achievements in this field during his long association with the Department of Biology and

Public Health brought to him international recognition. The importance of food technology has been strikingly exhibited during the present war by the way in which scientifically treated foods of highest quality and unparalleled quantity have been provided for our armed forces and for the enormous lend-lease program. This achievement has come about not by emergency acceleration of research but as the result of constant and ever broadening development during the last half century.

Technology was the first educational institution in America to undertake the specialized training of men in food technology. In 1896, a course in industrial biology, dealing with the industries concerned with the manufacture and preservation of food, was given by Dr. Prescott, then a young instructor in the Department of Biology. It was in the same year that he, in collaboration with William Lyman Underwood, '98, published the first of a distinguished series of papers on the fundamental relationship of time and temperature in the canning industry which were considered epoch making in changing an industry based upon individual experience to one under scientific control. Not only sterilization by canning but refrigeration, pasteurization, and other methods of prevention and control of food spoilage were studied in this program given to a small group of students; by the time the first World War started, the work had been much extended. As a major in the Sanitary Corps of the Army, Dr. Prescott had direct charge of the investigations into dehydration of vegetables, and as a result of his work the basic principles of an industry were given wide application. After the war, with Dr. Prescott as head of the Department of Biology and Public Health, the work in food technology was further expanded.

Dr. Prescott was a highly successful teacher, and the men who studied under him have almost without exception gone rapidly to the front in various branches of the food technological field. He is regarded as the father of the Institute of Food Technologists. During the 10 years preceding his retirement in 1942, the work in food technology and industrial microbiology became highly important and was widely recognized. Dr. Prescott was greatly assisted by Dr. Proctor, then an instructor and now Professor of Food Technology and director of all the work in that subject. Professor Proctor was graduated in 1923 and was awarded his doctor of philosophy degree in biochemistry in 1927. Under his direction, the food research laboratories at M.I.T. have been greatly extended in scope and usefulness and much research of special significance to the war has been carried on with outstanding success. After the war, it is expected that the food technology laboratories will be newly housed.

Professor Proctor has been widely known in the food industry in this country. He has for the past three years been closely associated with the work of the Office of the Quartermaster General and since July, 1942, has been chief of the research and development branch in relation to Army food supply, a position of the highest importance both to the Army and the food industry.

Promotions

FREDERICK J. ADAMS and Lawrence B. Anderson, '30, have been promoted from the rank of associate professor to professor on the faculty of the School of Architecture and Planning. Professor Adams is in charge

of the Course in City Planning and Housing and is widely known as an authority in that field. Professor Anderson, who joined the staff as assistant professor in 1933, is professor of architectural design. In association with Herbert L. Beckwith, '26, Associate Professor of Architectural Design, he designed the Institute's Alumni Pool, Briggs Field House, and several of the new laboratories.

Charles F. Park, 1869-1944

PROFESSOR CHARLES F. PARK, '92, director of the Lowell Institute School since its establishment in 1903, died at his home in Taunton, Mass., on September 26. Professor Park had also been a member of the Faculty of the M.I.T., from which he retired in 1934 after 42 years of service in the Department of Mechanical Engineering. Since his retirement he had devoted his attention to the affairs of the Lowell Institute School.

Professor Park was born in Boston in 1869, the son of William Robert Park and Ann Eldredge Park. He received the degree of bachelor of science at Technology in 1892 and joined the staff of the Department of Mechanical Engineering in that year. He became an instructor in mechanism in 1894, assistant professor in 1900, associate professor in 1906, and professor in 1912. After 1911, he was also director of Technology's mechanical laboratories.

In 1934, because of the rapid developments in mechanical engineering, the steady growth in size and importance of the Lowell Institute School, and anticipated extensions of this work, Professor Park found it necessary to give his full time to the school.

He was a fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science, and a member of the American Association of University Professors, the American Society of Mechanical Engineers, the Society of Automotive Engineers, the Society for the Promotion of Engineering Education, and the National Education Association. He belonged to Alpha Tau Omega and was a lieutenant colonel in the Officers' Reserve Corps.

In 1894, Professor Park married Maud W. White of Taunton, Mass., who survives him.

Centenarian

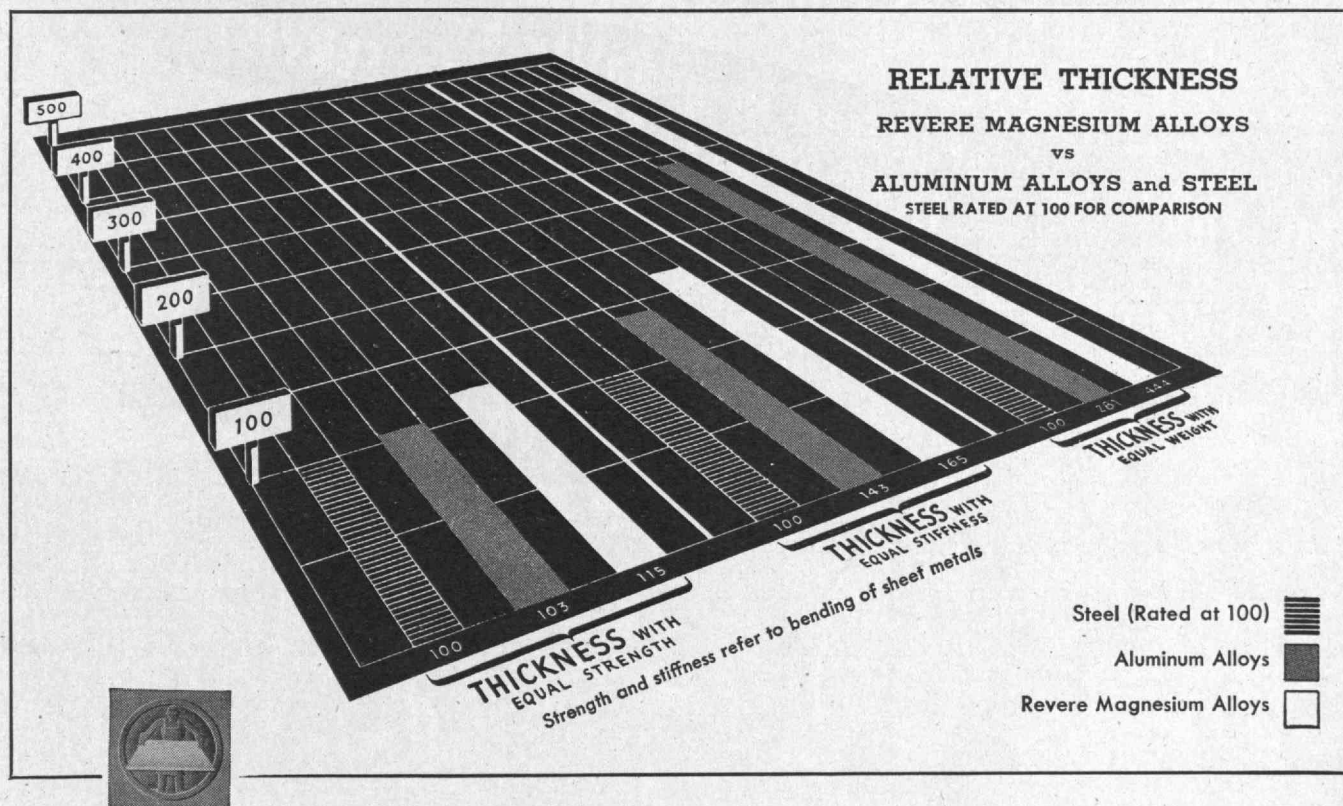
ALTHOUGH Professor Robert H. Richards, '68, was 100 years old on August 26, letters and messages of congratulation are still coming in. It was a memorable day for the Institute's oldest living graduate, last member of its first Class. He celebrated the day at his summer home in Randolph, N. H., where he received scores of callers.

Among the messages and congratulations was one from the Old Wellingtonian Society of Wellington College, Surrey, England, where he studied as a young man. The Canadian Institute of Mining and Metallurgy by unanimous instruction of its council in special session sent felicitations of all his fellow members, and the American Academy of Arts and Sciences paid him a warm tribute. In a letter in which he spoke for the Corporation and himself, President Compton commented on the great value of Professor Richards' fruitful years as a pioneering teacher and an engineer who has won international recognition in his profession. The American Institute of Mining and Metallurgical Engineers, of which he is a former president and vice-president, and has been (*Continued on page 68*)

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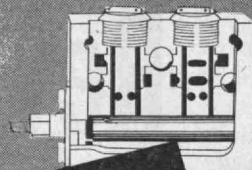
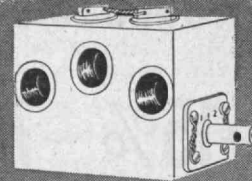
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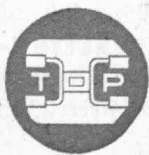


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"National Airlines' maintenance and operations figures show \$156.04 as the annual value of one pound weight saved per airplane operated by us.

"We find **BOOTS NUTS** very fast to attach—they can be used over and over again and they outlast the plane."

Boots Nuts Save Up to 60 Lbs. Per Plane

- Lighter, *all-metal* Boots are tougher, safer.
- Wartime standard fastenings on every type of military aircraft.
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- Can be used again and again, without weakening their self-locking grip.
- They'll "outlast the plane."
- Approved by every government aviation agency.

BOOTS STEEL ANCHOR NUT

(W25 #8-32) The comparable fiber nut is 151.2% heavier than this all-metal, steel, self-locking nut.



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Actual weights of over 250 different self-locking nuts used in aircraft, comprehensively reviewed for the convenience of aircraft designers, engineers, operating and maintenance personnel. Copy will be sent you, free, on request.

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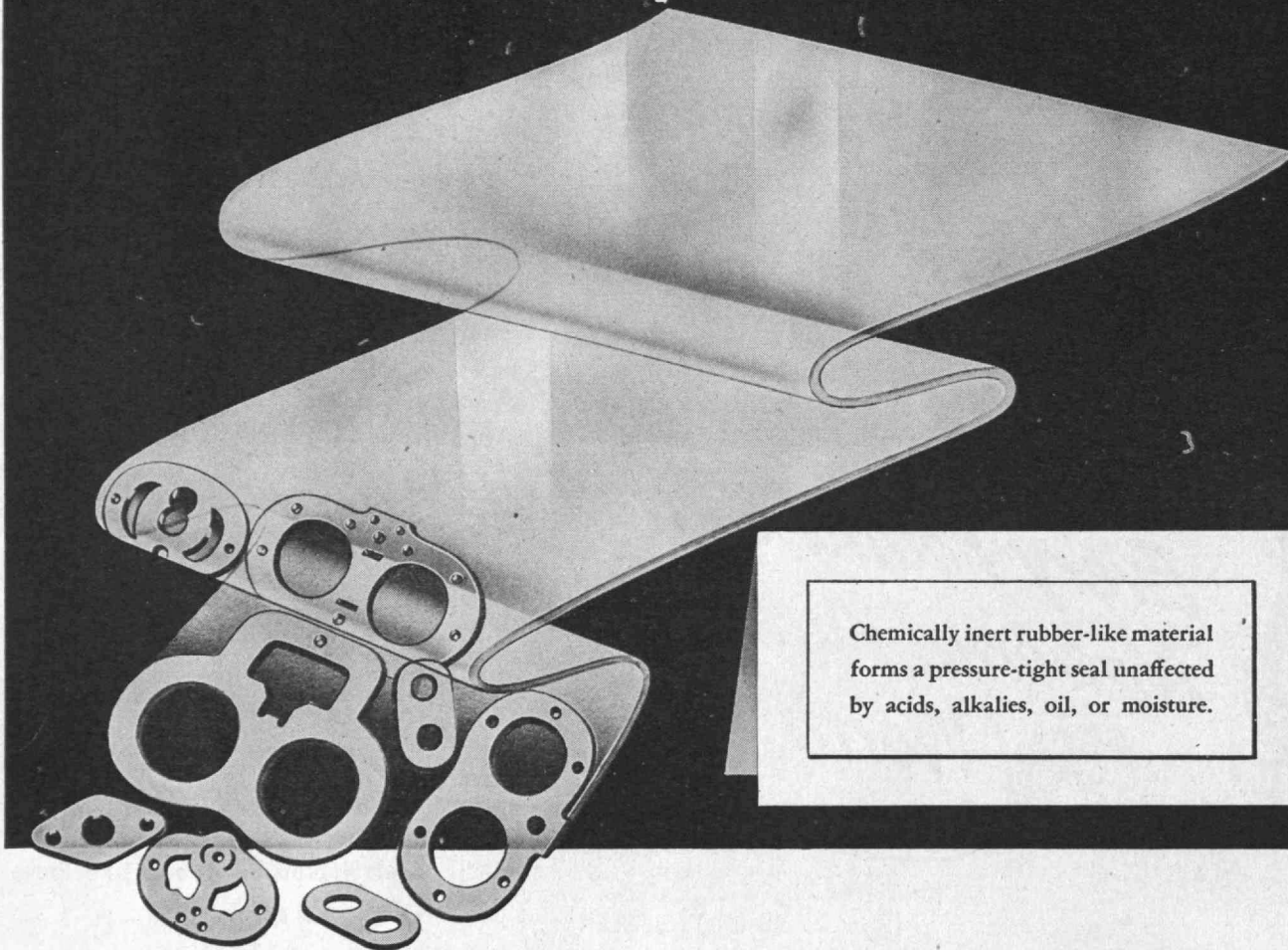
SELF-LOCKING NUTS

"They Fly With Their Boots On—Lighter"

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Chemically inert rubber-like material forms a pressure-tight seal unaffected by acids, alkalis, oil, or moisture.

THE use of Tygon "T", the rubber-like plastic, for gasketing is indicated where pressure-tight seals are required in connection with the handling of acids, alkalis, fresh or salt water, alcohols, oils, greases, or gasolines.

In such service, the inherent chemical inertness of Tygon "T", its non-aging and non-oxidizing properties, and the ease with which pressure-tight seals are formed, represent advantages not fully possessed by any other natural or synthetic material.

Tygon "T" may be readily formulated to meet a wide range of specific requirements. It may be made in formulations which will not support combustion; in non-toxic formulations for food and beverage handling; in formulations of varying flexibilities, some of which retain their flexibility at temperatures

as low as 80 degrees below zero. Tygon "T" gasketing is suitable for use at temperatures up to as high as 150° F.

Tygon gasketing is available in these forms:

- We can furnish sheets, tape, ribbons, strip or extruded rings from which you can cut your own gaskets;
- We can furnish the complete gasket, died out from sheets, or cut from extruded tube or rod stock, to meet your specifications.
- Or we can furnish molded gaskets to solve highly complex sealing problems.

Why not send detail and assembly prints to us for analysis, suggestions, and samples of Tygon formulations best suited for your needs? Write today to: The U. S. Stoneware Company,

Akron, O. In Canada, to: Chamberlain Engineering (Canada), Ltd., Montreal.

The development of effective means of corrosion control has been the work of The U. S. Stoneware Company for more than 78 years. Today, some fourteen production divisions in the United States and Canada, all operating under unified research and management policies, are manufacturing a wide range of specialized materials, each having individualized abilities for combating various corrosives. If you have a corrosive problem, we offer our help.



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Cooperating with the petroleum industry in its "all out" drive to victory, Lummus has also built complete plants for the production of 100 octane gasoline... Naphtha Polyform units for the preparation of buty-

lenes... iso-octane and alkylation plants... isobutane, isopentane, base stocks and other 100 octane stock preparation units... solvent plants for the production of specification aviation lubricating oils... also ammonium picrate, phenol and toluene plants.

Lummus has surveyed, engineered and built many refineries and chemical plants in all parts of the world, including England, Russia, China, South America, Mexico, Europe, Netherlands Indies, Burma, India and the Near and Far East.

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LUMMUS

TOOLS FOR TEACHING

(Continued from page 24)

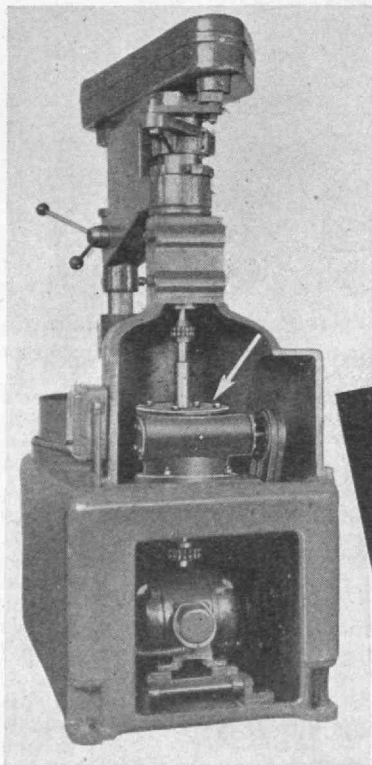
between a domed sky above on which appear 20 or more collimated stars, and a screen below on which landscapes are projected, simulating altitudes from low levels to more than 30,000 feet. Ground speed — the rate at which the landscape moves across the screen — and wind drift can be varied. The navigator's technique undergoes thorough testing as he makes sextant shootings of mist-dimmed stars from the plane. The bombing trainer utilizes the projected landscape, on which the bombardier locates his target. Bombing runs are made as with an actual bomber, the bomb release is pressed at the calculated correct moment, and soon thereafter a flash of light on the screen indicates just where the simulated bombs have fallen.

With these devices as with the others, the instructor is in constant touch with all that his student or students may do. It is in this close co-working that the synthetic trainers move out of the realm of merely ingenious mechanisms and must be recognized as pedagogical instruments of great value. They enable the instructor to watch unseen as his students go through their paces in conditions perfectly simulating those of actuality, and, more than that, they permit him to intervene, to increase complications, to correct errors, to emphasize values, *at the moment* when such action is of greatest value. Beyond this, they allow for the exchange of experience between instructor and student. If the instructor has been through a delicate and dangerous situation, he can set up comparable simulated conditions, study the solution which the student produces, explain and discuss it in the light of his

own knowledge. Given instructors of the right sort — and it should be said emphatically that one of the most important contributions of the Special Devices Division is in its function as a graduate school turning out instructors who are able and sincere teachers in the best sense of the term — the teaching relationship combines competition, emulation, and collaboration between a developed and a developing mind on a common problem.

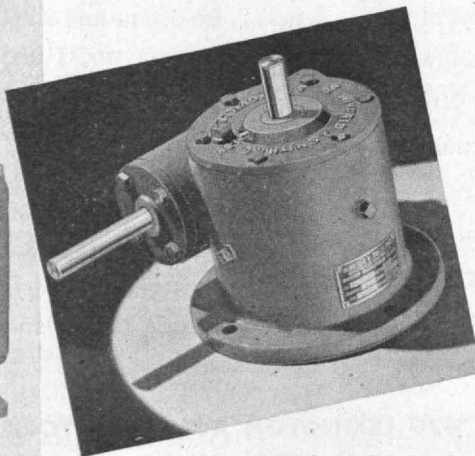
It would, for instance, be difficult to find a clumsier tyro at mechanical complexity than the writer of this article, to whom the safe-and-sane driving of a vintage sedan at a pace so slow as to be maddening to all unfortunate sharers of the same road used to be a most taxing experience. Put such a "student" for 10 minutes before the synthetic device which Captain de Florez' men know as 12-E, "flight engineer's panels," and one would properly not expect much. The student's panel is an awesome congress of dials, gauges, switches, buttons, and levers. It is what the flight engineer deals with in a multiengine plane, the arcanum where he performs the mysteries associated with warming up, starting, getting off the ground, maintaining steady flight, and coping with weather conditions as directed by the pilot. As has been suggested, all its dials, gauges, and so on, register on the instructor's panel whatever the student does. Thus when he starts his motors — and the sound effects are most convincing — but fails subsequently to regulate the fuel mixture, the instructor's telltale reports the fact, and in an instant a coughing sputter to port and to starboard has the student frantically surveying the board to see which of the things he was told he should do he didn't do. Once that mixture

(Continued on page 48)



WHS STANDS FOR Dependability

WHS No. 6 EV Worm Gear Reducer
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Machines for precision work.



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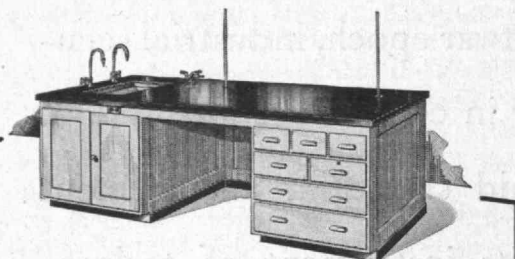
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TOOLS FOR TEACHING

(Continued from page 46)

is corrected, maybe a pulsating whine indicates that he has not synchronized the motors. Yet, complex as the problem is, and fearsomely real as the simulation makes it, the running advice and encouragement of a good teacher are there to back him up, to remind him, to warn him. As a consequence, even the utter tyro after his second turn at the board feels that first faint glimmer of confidence which is, as every teacher knows, the essential condition for the beginning of conscious, planned learning.

By proper employment of the principles and techniques used in these trainers for warfare, special trainers for peacetime can readily be developed. Virtually any operational situation encountered in industry is susceptible to such treatment. More and more as the process industries expand, operation depends upon the manipulation of controls, the reading of dials and gauges, the handling of switchboards, all for the direction of chemical reactions, physical combinations, electrical phenomena, which are themselves unseen by the operator. The plant manufacturing synthetic rubber, for example, offers a training opportunity analogous to that used by the Special Devices Division in preparing men for fixed gunnery. If the operator does certain things in proper sequence, he gets a desired result; if he forgets, or if he breaks sequence, the result is not right. The control board which he will use in actual operation can readily be duplicated in mock-up, with telltales such as are used in gunnery trainers, and he can be given opportunity thus to go through his paces again and again, until desired patterns of response have been established in his mind. Then when he takes over the operation of a plant representing a capital investment in the tens of millions, he will not waste time and resources in costly mistakes.

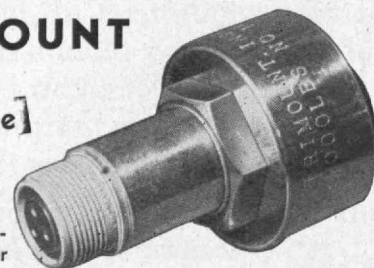
Comparable to the problem of free gunnery — in which the gunner's weapons are movable rather than fixed in the wings and nose of his plane — is that posed by the operation of a city electric plant, where unforeseeable changes in the external situation set up competition for the operator, as is simulated with the network analyzer at the Institute. Heavy overloads, trees that go down across lines

(Continued on page 50)

The TRIMOUNT

Dynamic
Pressure

GAUGE



The Series "N" Trimount Dynamic Pressure Gauges offer outstanding advantages over old style, conventional instruments for measurement of air foil pressure distribution and boundary layers, manifold, blower rim, fuel system, air scoop and hydraulic system pressures, and other measurements requiring accurate, sensitive, static and dynamic interpretations. • The Series "N" Gauges are of the differential type with ranges from 0 to 1000 lbs., and frequency response from 0 to 500 C.P.S. They can be used with existing type of carrier amplifying equipment. Other series offer ranges from 0 to 3500 lbs. Complete data and specifications available on request.

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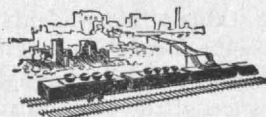
KEEPING UP WITH

Electricity

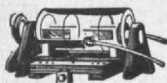
SYNTHETIC FIREFLIES... New Westinghouse fluorescent marker lamp rivals the firefly in economy of light generation. Tiny lamp, consuming only 1/10th watt, will prevent mishaps on dark stairsteps. Unlike lightning bug, it can be kept glowing continuously—at practically no cost.



1/50,000,000th OUNCE... That's the weight of a single layer of oxygen atoms the size of an air-mail stamp. Westinghouse research engineers have built a delicate balance that measures the weight of such a microscopic layer of oxide on metal—to determine resistance of special alloys to high temperatures.



POWERHOUSE ON WHEELS... The retreating enemy knows that the quickest way to paralyze a city is to destroy its powerhouse. Advancing Allies know that the quickest way to restore order is to restore power. A 5000 KW power train, built by Westinghouse, moves in on railroad tracks, hooks up to power lines, starts boiler and generator... then lights come on, order emerges.

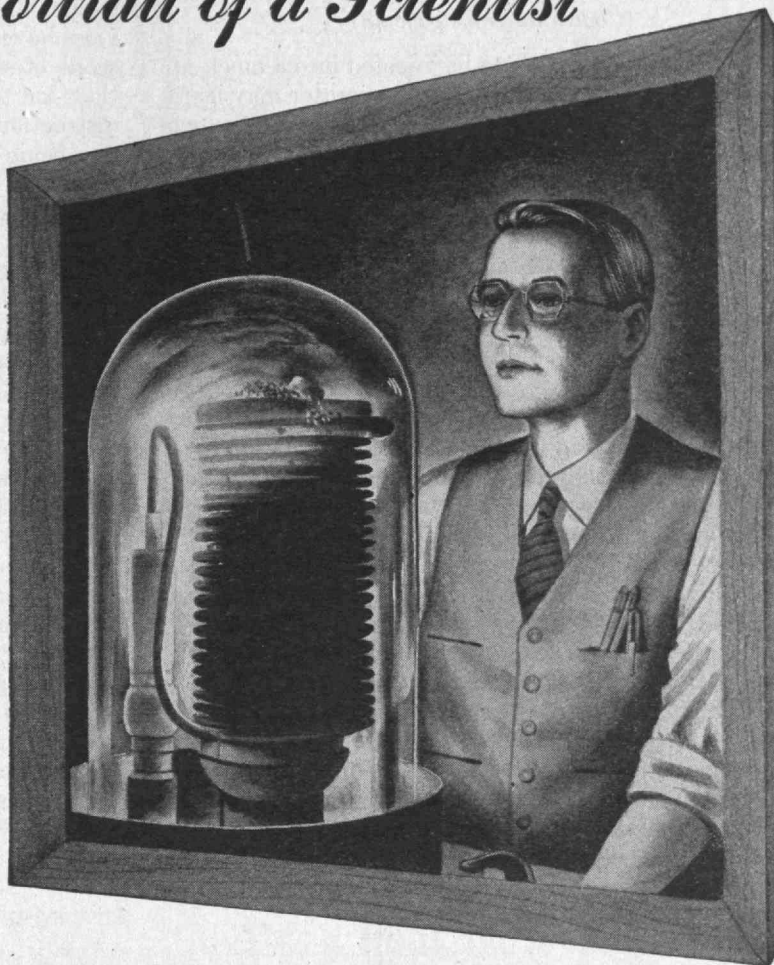


INSIDE STORY... Transparent Lucite bearings now permit research engineers to visualize performance of lubricating oil in bearings, subjected to varying operating speeds and pressures. Red pigment shows where oil goes and what it does.



PREFORMED PLASTICS... New Westinghouse process in plastics manufacture "beats" resins into cellulose fibre, then shapes mixture over perforated copper form. Plastic is peeled off and dried, then placed in heated mold and pressed into final shape. Saves time in making reinforced plastics of intricate shapes.

Portrait of a Scientist



creating a better yardstick for testing wartime metals

Spectrum analysis provides the *quickest* and *most* accurate method for checking the composition of metals used in making guns, planes, tanks and ships.

Iron has long been used as a *yardstick of comparison* in spectrography—because of the large number of lines in the iron spectrum.

Formerly, the best standard obtainable was *iron only 99.9 per cent pure*—containing impurities that produced confusing lines in spectrographic pictures.

Westinghouse research engineers tackled the difficult problem of producing a purer iron—a *better yardstick* for testing wartime metals.

They accomplished this by fusing the purest iron obtainable in a high-frequency induction furnace, surrounded by an atmosphere of hydrogen gas.

Result: iron 99.99 per cent pure—containing only 1 part metallic impurities in 10,000 parts of absolutely pure iron!

Today, this ultra-pure iron is "mass-produced" by Westinghouse at the rate of 1000 pounds per year—and is used in all parts of the anti-Axis world to improve the quality of war material.

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TOOLS FOR TEACHING

(Continued from page 48)

— all such unpredictables can be injected into a mock-up by the instructor, so that the student operator may learn through simulated conditions the ready cerebration which he must be prepared to practice in actuality at the drop of the hat. By the same token, the engine and boiler tests which are run on actual machines in standard engineering pedagogy can be greatly improved upon by the synthetic idea, in that breakdowns, failures, overloads, and other variables can be introduced into simulated operation at will by the instructor, and the student thus can be freed from the monotony and the danger of working always in terms of perfection.

In the ingenuity and versatility of mechanisms such as have been discussed, and particularly in the philosophy of instruction which they embody, is obvious justification for the amazingly swift growth of the Special Devices Division and for the unstinting support which it has received for its work. The Navy officially recognized synthetic training as a distinct educational technique in April, 1941. A Special Devices desk then was established in the Engineering Division of the Bureau of Aeronautics. By August, 1943, the desk had become a division concerned with invention, research, construction, engineering, production, and distribution in such wide fields as aviation, navigation, ballistics, optics, mechanics, radio electronics, photography, and at times even medicine and psychology. Before Pearl Harbor, about \$2,000,000 had been authorized; since then, more than \$100,000,000 have been provided by the services for research and production

in the field of synthetic training. Work has been done on over 600 different projects; more than 200 different devices have been produced and are being distributed. The scope of some of these projects is suggested by the fact that for the "dual projector trainer" — a vital aid in instruction in free aerial gunnery — motion-picture film was being produced by December, 1943, at a rate three times that of the largest Hollywood producer of entertainment films.

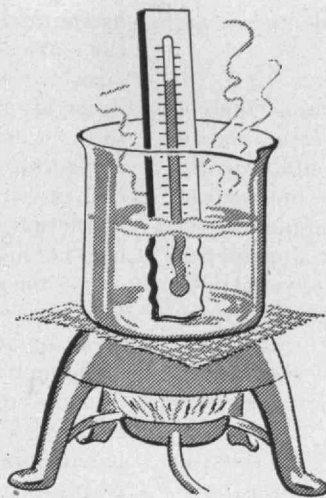
For the growth thus indicated, there is equal reason in another great group of materials and instruments developed by the Special Devices Division. These devices are not primarily for the purpose of instruction through simulated situations — are not, in other words, synthetic trainers. Rather, they are designed to assist in other teaching functions. In variety, breadth, and human interest, this group fully match the synthetic trainers, and in at least a dozen ways they offer strong promise of valuable and effective utilization in schools and colleges once the war is past. It is a difficult task to narrow down discussion of this group to individual examples; the range runs from compact and challenging kits for the quick preparation of accurate relief models of enemy territory to classroom projectors for the study of the stars or of architecture, biology, geology, or any other discipline in which dependable recognition of objective data is essential. In the group are instruments which will relieve the teacher of the task of ascertaining the mnemonic status of his students; others which give the student himself a means of checking independently just how good his rote learning is; others which, by making judicious use of the competitive spirit

(Continued on page 52)



P O O R & C O M P A N Y
C H I C A G O

Manufacturers of Railway Equipment used by Railways throughout the world



Formula for Controlled Heating

Take any large steam-heated building . . . Add diversified heating requirements; upper floors with four exposures, lower floors with two exposures . . . Install a Webster Moderator System—and you have a proven formula for comfortable, even heat.

The Webster Moderator System of Steam Heating assures correct heat in every part of your building. Accurate orificing assures that all radiators are supplied with steam at the same time—but in varied quantities as required.

Continuous, adequate supply of steam is provided by an outdoor Thermostat which automatically changes the heating rate to agree with changes in outdoor temperatures.

Overheating, underheating and costly waste of rationed fuel are ended.

More Heat with Less Fuel

Webster Engineers have found through thousands of surveys that seven out of ten large buildings in America (many of them less than ten years old) can get more heat per unit of fuel consumed.

If you are wondering now how to obtain controlled heat throughout your building next Winter, write for "Performance Facts". This free booklet contains case studies of 268 modern steam heating installations.

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The Webster Outdoor Thermostat automatically changes heating rate when outdoor temperature changes. This device is part of the Webster Moderator System, a central heat control that is saving fuel for hundreds of America's commercial, industrial and institutional buildings.



Fuel-Saving
Starts With
CONTROL

AUTOMATIC
Webster
Steam Heating

TOOLS FOR TEACHING

(Continued from page 50)

strong in youth, bring to the business of learning some of the pleasure of sport; others which frankly capitalize on youth's innate desire for fun and put it to profitable work. In one way or another, all of these devices which can of their nature reflect the pioneering educational philosophy of the division do so. Some make the student a partner of the teacher in the learning process. Some rely outright on the characteristic American love of gadgetry. Others are deliberately calculated to relegate to the machine, where it belongs, the handling of repetitive routine; in order to free priceless time of teacher and student for analysis and cerebration.

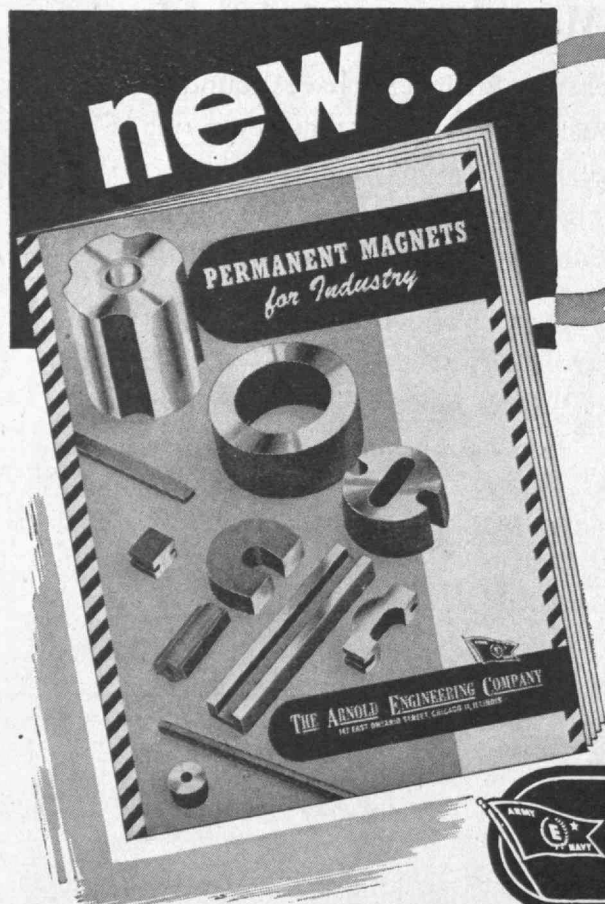
For example, consider device 5-0, the "automatic rater," familiarly and affectionately known as the "pin-ball machine." It is a cabinet holding 650 cards on which are printed questions with several possible answers. It looks a bit like, not the pinball, but the slot machine sacred to the days of the blind pig. When the student presses a starter button, one of the cards appears in a window at the top of the affair. The student chooses his answer and presses one of seven numbered buttons corresponding to the number of the answer he thinks is right. The machine records a score based on the correctness of the answer and the time, within a range of 20 seconds, required by the student to make his selection. If he was right, a "correct" light shows. If he was wrong, the "incorrect" light glows and no score is recorded. Then — and here is the shrewd common sense of it — the card moves to a second window where the correct answer may be seen

by the student, and it stays there for study until he presses the starter button again to bring another question up for answer. One can but think with sorrow of the hours of "recreation" spent in the drugstores of many a college town, where the pinball machine and similar gadgets while away the time to no purpose. The Navy has found that device 5-0, installed in recreation halls, is a focus of attraction, and that a student gets just as much fun out of backing his knowledge against the other chap's as he does out of backing his ability to "tilt" at the right moment.

Cousin to the automatic rater is the "visual quizzer," an automatic slide-film projector which throws on a screen memory-refresher films, each picture carrying a superimposed question with a number of possible answers. Score pads distributed among the class are ruled in numbered boxes for the answers. The time each picture remains on the screen can be controlled from four to eighteen seconds, and at the discretion of the instructor a picture may be held as long as desired for discussion. For the familiar "ten-minute quiz," standard in so much pedagogical practice, the machine offers interest and saving of time.

Grandfather's stereoscope has a descendant among the offerings of the Special Devices Division — a descendant which can be of inestimable use in teaching, whether in kindergarten or college. It is a molded affair eight inches in greatest dimension. The stereoscopic views are 16-millimeter film transparencies mounted around the circumference of a cardboard disk which fits inside the viewer. The disk is rotated by means of a lever, and as each pair of pictures comes into focus, a legend identifying

(Concluded on page 54)



Latest Permanent Magnet MANUAL

NEW! A valuable, up-to-the-minute manual on the design, production and application of the modern permanent magnet. Prepared by The Arnold Engineering Company, this is an authoritative treatise based on many years' experience in the production of Alnico permanent magnets for a wide range of applications.

Contents include such subjects as Magnet Materials, Resistance Comparisons, Physical and Magnetic Properties, Demagnetization and Energy Curves, Fabrication, Design and Testing. Charts and tables illustrate and explain various aspects of the discussion.

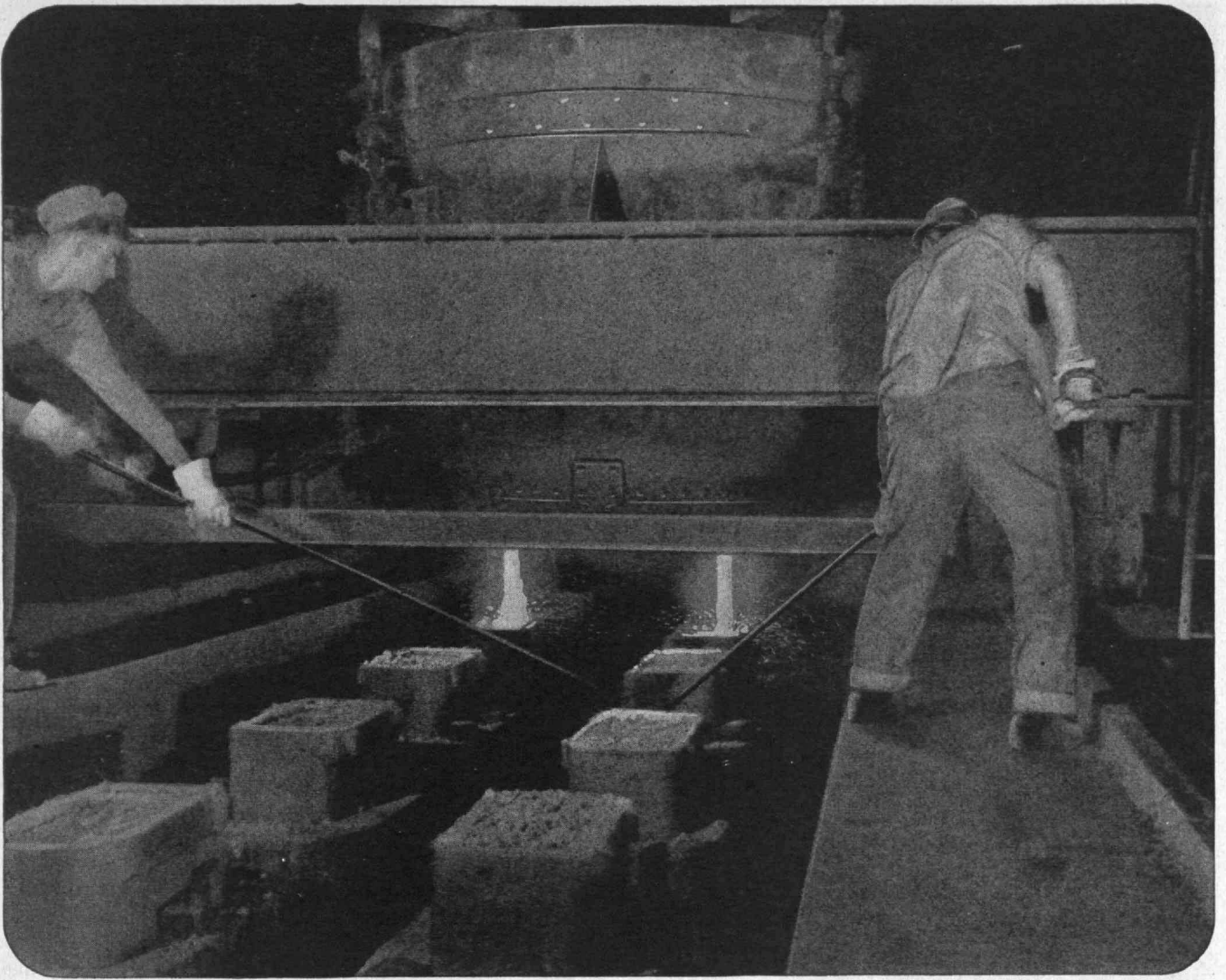
Recent improvements have opened many new fields for permanent magnets to reduce the cost and improve the efficiency of many devices.

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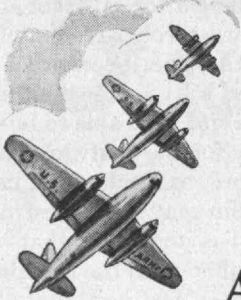
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O.W.L. Photo by Palmer, in an Allegheny Ludlum plant



STEEL IS FLOWING TODAY THAT WILL BE FLYING NEXT MONTH

ALLOY steel, conceived in the mighty heat of the electric furnace, is just being born when it teems into ingot molds. From here it rapidly multiplies into countless forms and shapes, reaching maturity within a matter of days as parts in finished warplanes, tanks, guns, ships or munitions.

Many of those products will be better, and will perform their war job without fail—thanks to the quality control exercised by Allegheny Ludlum on every batch of alloy steel leaving its mills. It's a

rigid control, true, but very necessary to give our fighting men the decisive edge in battle that better equipment assures. And the same close control, coupled with Allegheny Ludlum's research activities—now developing still better fighting steels for our armed forces—will continue after victory is won, to help create better peacetime products for you.

But before there can be peace, we at home must exert every effort to win the war. Collection of scrap metal, salvage of waste fats, conservation wherever possible and regular purchases of war bonds are

your contributions from the home front. Only thus can you give the men behind the guns the tools to assure victory.



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STEEL CORPORATION
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Like every other long established manufacturer, Diefendorf is waiting for the word . . . the word that will come with V-E Day—"Convert."

In the meanwhile—we are in consultation with engineers who are thinking now of the gearing problems "Shift" day will bring.

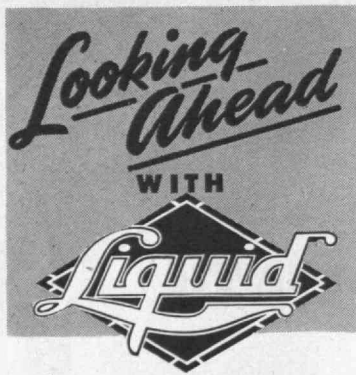
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TOOLS FOR TEACHING

(Concluded from page 52)

or discussing the subject appears in a slot in the frame. For recognition and identification, and for testing one's memory of visual data, the viewer provides a means which is interesting and on call whenever wanted.

There are three-dimensional weather maps, built on the principle of children's "pop-up" books, which explain what a cyclone is and in so doing tacitly recognize the fact that mankind doesn't experience weather horizontally, as ordinary maps show it, but vertically. There is a "star recognition trainer" — a big umbrellalike canopy that can be hung from a schoolroom ceiling, plus a projection globe that sprinkles the canopy with stars — which will fascinate from six-years-old to sixty and, by fascinating, teach. There are hundreds of models of ships, planes, tanks, so accurate that their silhouettes serve as enemy targets in the synthetic trainers that have been mentioned. There are wiring boards and hydraulic benches for student practice and classroom demonstration. There is, in sum, in this group of the Special Devices Division's work a rich store of directly utilizable material which will stir the imagination and arouse the avidity of any teacher.

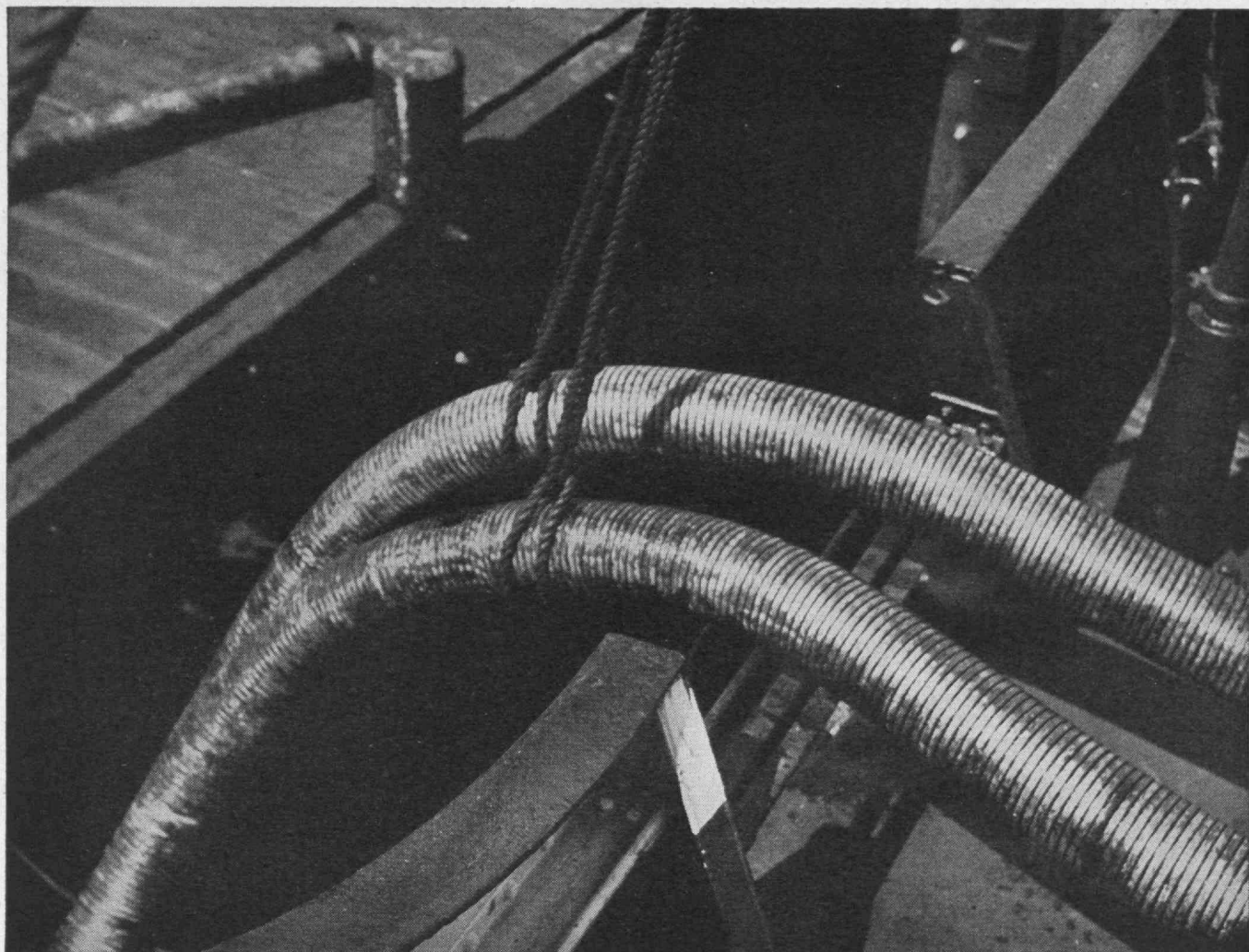
Beyond question, one of the most valuable by-products of this war will come out of the complex of initiative and ingenuity which has produced the mechanisms, the techniques, and the underlying philosophy we have been discussing. Possibly that by-product will find its greatest use in the devising of mock-up controls and simulated situations to determine, before a \$10,000,000 plant is built, whether it will be a balanced plant in operation. Maybe its great opportunity will come rather in expediting and simplifying the task of mastering objective fact in schools and colleges so as to allow more time and energy for the increasingly more exacting need for analysis and theoretical understanding of a world wherein the abstract and the abstruse play a constantly larger role. The saving grace for these United States in the grim necessities of recent years has been that they had a lead over their enemies in knowledge of certain fields and were able to build up a lead in others. The great hope for the postwar years is that we shall be able to learn more, to teach more, in a given time than can those whose aim may be to destroy. For this reason most powerfully, it is important that we make full use of the potentialities inherent in the fact that the Special Devices program has been fostered, that the theory has been established, that the devices have been built and used, and that a corps of able and enthusiastic practitioners have been developed.

SAFETY IN POSTWAR HOMES

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than 18 inches. The clearance can be reduced if the combustible walls are protected with metal shields, but though such shields may be used as an expedient in existing construction, they detract from the appearance and are a poor substitute for adequate clearances in new construction. Gas and electric ranges, however, are now built with such good insulation that a space of six inches or less between the range and the wall is not uncommon and is permissible. Oil-burning ranges of approved types

(Continued on page 56)



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SAFETY IN POSTWAR HOMES

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are also insulated, and the safe spacing for such appliances is less than that required for the usual types of coal and wood ranges.

The foregoing space requirements are important, as many fires have been caused by inadequate spacing. It is not uncommon to find stove installations where the stove-pipe is only a few inches from the ceiling, and the coal or wood stove a few inches from a combustible wall.

Fires have started from faulty construction of fireplace hearths. Wood sheathing has been known to be ignited where the brick hearth was laid on top of it. A screen is a necessity for a fireplace, since exploding coals from the logs are frequently hurled into the room, sometimes igniting the furniture.

For safety, the burner of a gas appliance should be designed for the gas which is to be used. It is recommended that the gas appliances bear the label of approval of the American Gas Association. Such appliances are tested in accordance with the procedures approved by the American Standards Association, and such tests and approval give assurance that the safety devices needed are included as part of the appliance.

Misunderstanding has occasionally occurred in regard to American Gas Association labels. The purchaser should be sure that the approval is for an appliance designed for use with the gas that is intended as fuel. Whether it is may be ascertained from the lists of approved appliances published by the American Gas Association. Approvals

(Continued on page 58)

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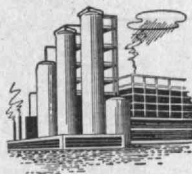
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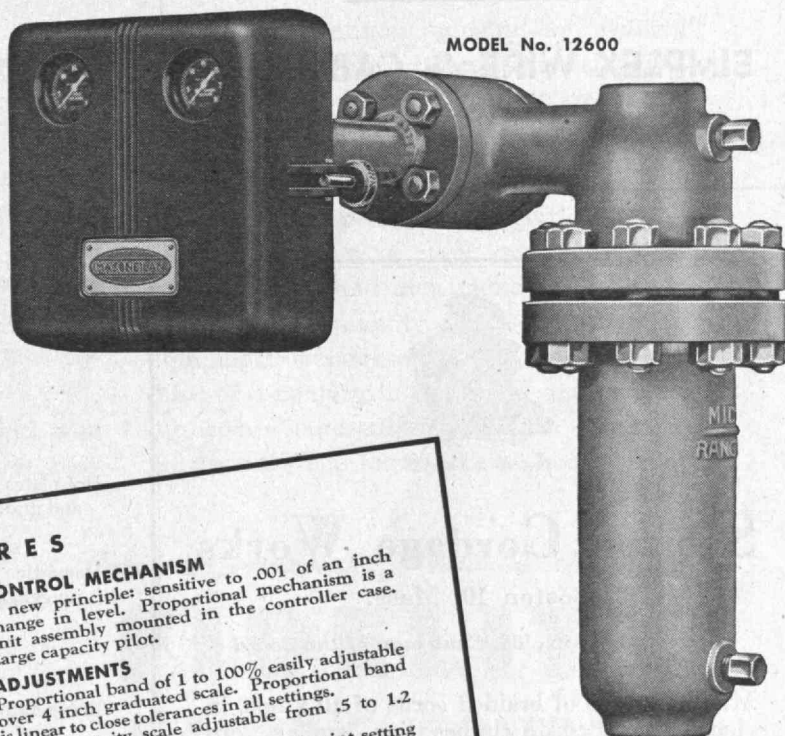


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SAFETY IN POSTWAR HOMES

(Continued from page 56)

are given to appliances designed for manufactured, natural, and liquefied petroleum gases, but those for liquefied petroleum gas appliances using propane, butane, or a mixture of the two are based on somewhat different requirements from those for appliances using manufactured or natural gas. Domestic gas water heaters using propane, butane, or a mixture of the two have proved hazardous when located in basements. Similarly, it is not wise to place domestic gas water heaters in a bathroom, irrespective of the type of gas, for they may exhaust the oxygen in the small space usually allowed for a bathroom. The accompanying table summarizes some of the important requirements to be followed in the safe installation of gas appliances designed for liquefied petroleum gas.

DATA ON APPLIANCES COMMONLY USED WITH LIQUEFIED PETROLEUM GAS (PROPANE, BUTANE, OR A MIXTURE OF THE TWO)

Appliance	Vent Required?	Label of Approval		Remarks
		Vent Required?	Required on Appliance? *	
Space heaters	Yes	Yes		Have large gas consumption. Products of combustion may include carbon monoxide when combustion is incomplete.
Gas water heaters	Yes	Yes		Have large gas consumption. Automatic types not constantly attended. Extinguishment of pilot light may permit escape of gas and subsequent ignition. Basements are not safe locations for water heaters designed for liquefied petroleum gas; bathrooms may be an unsafe location for such heaters, because of small space, inadequate ventilation, and possible exhaustion of oxygen in the room.
Hot plates and griddles	Not as a rule		Yes	Because of absence of a vent, products of combustion are not carried off.
Domestic ranges	Vent preferred. See Notes		Yes	Have large gas consumption. Vent may be necessary at high altitudes (2,000 feet or more) to provide adequate draft.
Refrigerators	No	Yes		Low gas consumption.

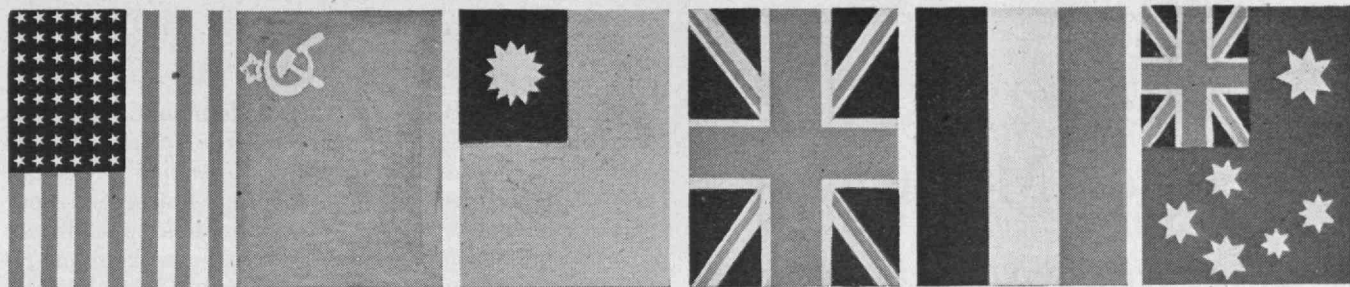
* Label of the American Gas Association is acceptable with statement on name plate or separate label that appliance is for use with liquefied petroleum gas only.

Notes: Automatic cutoff is required in approved appliances to shut off gas supply to pilot as well as to main burner in the event that pilot light is extinguished.

Plans are under way for approval of appliances for high altitudes ranging from 2,001 to 5,200 feet. Appliances so approved are required to display a high-altitude rating on their name plates. A reduction in rating of 5 per cent of B.T.U. input should be made for each 1,000 feet elevation in excess of 5,200.

The loss of life which has occurred in apartment houses as a result of leaks in central refrigerating systems in which methyl chloride was the refrigerant has caused questions to be raised concerning the toxic, explosion, and fire hazards of refrigerants used in domestic refrigerators

(Continued on page 60)



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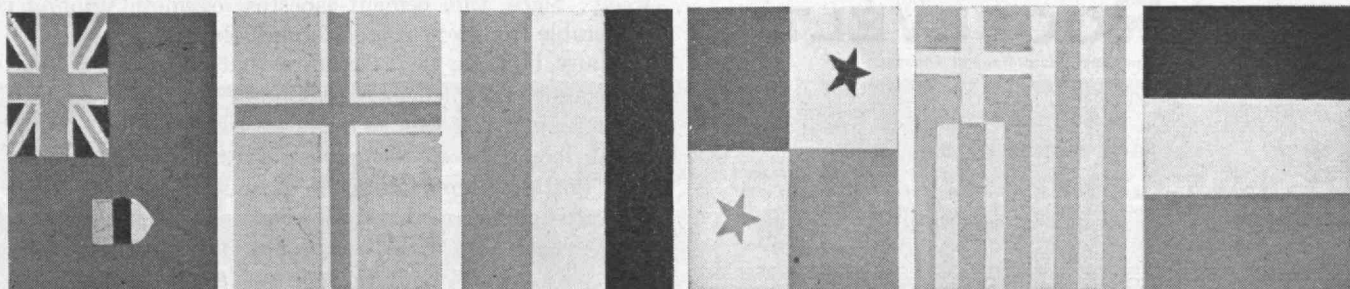
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SAFETY IN POSTWAR HOMES

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of the unit type. Because of the small amount of refrigerant provided in domestic refrigerators — usually two to four pounds — the toxic hazards of a leaking refrigerant are not serious, as the concentration is not severe. Four of the common refrigerants are: ammonia (used in absorption units, such as gas refrigerators and kerosene refrigerators), sulphur dioxide, methyl chloride, and dichlorodifluoromethane (Freon-12, or F-12). Of the four, sulphur dioxide is the most toxic; ammonia is next in order; methyl chloride is next; and Freon-12 is practically nontoxic.¹⁵

As methyl chloride has little odor, the manufacturer customarily adds a warning agent (acrolein) which causes the eyes to water and causes irritation in the nose. The amount usually recommended is about 1 per cent of the refrigerant. While Freon-12 gives no warning of its presence in the air, an odorant need not be added, because the refrigerant is practically nontoxic and noncombustible.

To reduce fire hazards, motors for electric refrigerators which require lubrication should be oiled as recommended by the manufacturer (usually once in six months).

Listing of domestic refrigerators by the Underwriters' Laboratories under its re-examination service provides a means for purchasers to assure themselves of equipment manufactured in accordance with safe standards. The manufacturer has an option whether to put a marking of the re-examination on the equipment. The marking, when used, appears on the condensing unit and not on the refrigerator box. The Lists of Inspected Electrical Equipment published by the Underwriters' Laboratories include the listings for specific models of refrigerators.

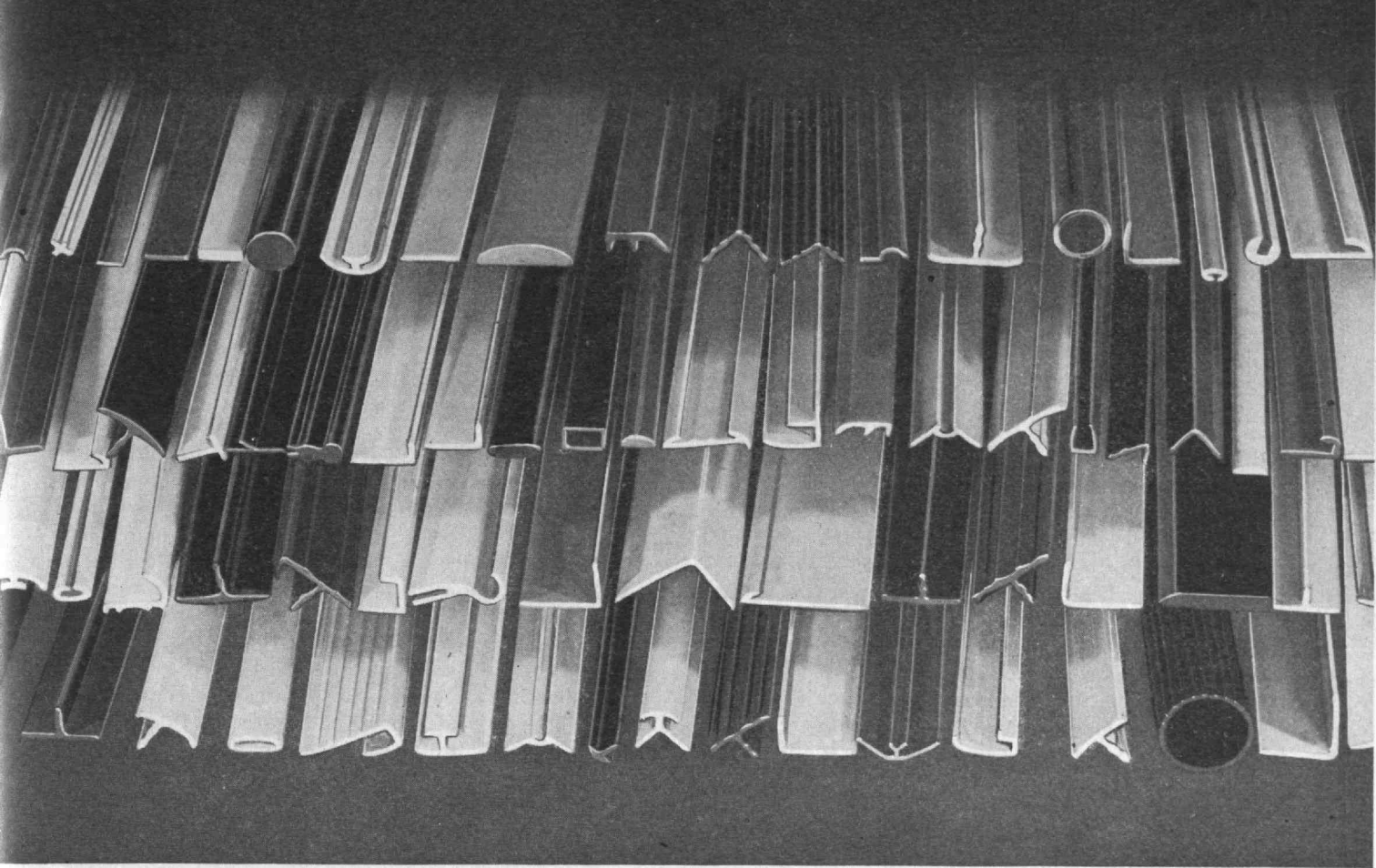
Gas-fired domestic-type refrigerators should comply with the American Standard Approval Requirements for Refrigerators Using Gas Fuel. Such models may be identified by the approval seal of the American Gas Association.

When considering the roofing of his dwelling, the homeowner should remember that while new wood shingles which have not been subjected to weather show considerable resistance to ignition in flying brand tests, weathering of shingles soon opens the pores of the wood and develops cracks, so that under certain conditions the shingles are made vulnerable even to small sparks. It is to the owner's interest to use incombustible roofing to safeguard his property from ignition by sparks or flying brands. The conflagration hazard is reduced by the use of such roofing. A lower fire insurance rate is allowed in many sections for dwellings with incombustible roofing than is charged for dwellings with combustible roofing.

Asphalt shingles are highly resistant to ignition from small fire sources, such as sparks and flying brands. Once ignited in a general conflagration, asphalt roofing burns freely. Slate, tile, cement-asbestos, or metal roofing is preferable from a fire safety standpoint.

Many building codes require that the interior finish of a garage attached to a dwelling be of Portland cement plaster on metal lath. The protection required for the wood door between the garage and the dwelling varies. The Portland cement plaster on metal lath has fire resistance in excess of that for a wood door, even if the wood door is protected with sheet metal. The inconsistency in

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EXTRUDED PLASTICS AND SPECIAL TOOLS

SAFETY IN POSTWAR HOMES

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the protection provided for the interior finish and in that for the door is not justifiable, as the cost of the Portland cement plaster on metal lath increases the cost to the owner without giving him increased protection.

The fire loss experience with garages attached to dwellings has been favorable and justifies a more liberal treatment for the interior finish. To provide protection which will preclude the passing of fumes from the garage to the dwelling and at the same time will give some fire resistance, the studding of the interior of the garage may be covered with wood sheathing, with incombustible wallboard over the wood sheathing. The butting joints of the wallboard should be protected with incombustible flats.

A curb eight inches high, at the threshold of the door opening from the garage to the dwelling, is recommended. Many existing requirements call for a 12-inch curb. Other requirements in existing regulations, such as a concrete floor, lighting, heating, and drainage, are considered reasonable. Garages attached to small houses are often used for miscellaneous storage. It would be much safer to keep the garage free of such storage. The practice in one large city of depressing the floor of the garage several feet below the ground level creates hazards and inconvenience for the owner. In winter, towing assistance is often necessary to remove the automobile from the garage.

Accident Hazards. Accident hazards in the home may mean different things to different people, depending upon their personal experience. To some, the words bring a picture of rugs on highly polished and slippery floors, or lack of care in the storage of medicines, or faulty arrangement of pots and kettles, or one or more of numerous other items which contribute to personal injury in the

home. Few realize that important safety fundamentals can and should be incorporated in the design of the dwelling. Some of these fundamentals are discussed below, and emphasis is placed on those details which may be factors in reducing falls, the most prevalent source of fatalities from accidents in homes.¹⁷

For walking up and down stairs with reasonable comfort, it has been found that the slope of a stairway in which the product of the riser times the tread is not more than 75 inches or less than 70 inches, is satisfactory. The risers should not exceed $7\frac{3}{4}$ inches in height, and the treads, exclusive of nosing, should not be less than $9\frac{1}{2}$ inches in width. In any one story, the risers in a stairway should be of uniform height and the treads of uniform width.

Winding stairs, which have been designed as a detail of architectural beauty in mansions, are not recommended as a safe type of stairway. Serious falls have resulted from use of them. The return and square-turn landings are recommended, since they will break a fall. A landing of nonuniform width, such as the skew type, will permit the victim to fall the entire length of the stairs. Rails, which are usually provided for stairs above the basement, are recommended for all stairs, irrespective of location. A closet under a combustible stairway may be a catchall for the accumulation of articles and materials that may be easily ignited. A fire in the closet may prevent the use of the stairway as a means of egress. Hence, closets should not be constructed under stairways.

Many house designs have been observed with some tricky floor-level arrangements. For safety, however, the floor on any one story should preferably be on the same level. Abrupt changes in floor levels may result in falls and injury.

(Continued on page 64)

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SAFETY IN POSTWAR HOMES

(Continued from page 62)

Flagstones for walks and steps have been used attractively. They should have relatively even surfaces to preclude the tripping hazard. Failure to observe this precaution has resulted in serious falls, particularly by women wearing high-heeled shoes.

An economy measure that has been adopted in many cities is the discharge of water from downspouts which lead to the sidewalk. The disadvantage of this manner of discharge is that in winter, water from such drains may freeze and be an accident hazard for all persons using the sidewalk. Downspout connections should be made direct to the sewer.

Another accident hazard is the ceiling of basements, which is often so low that with piping suspended from it, or even without suspended equipment, people of average height have to stoop if they are to avoid injury. Headroom in basements should be sufficient to permit people to stand erect without danger of striking the ceiling, floor joists, or suspended equipment. Similarly, headroom on stairs should be sufficient so that even tall people will not find it necessary to stoop on the stairs or at doorways leading to the stairs.

While safe construction is of course fundamental to the prevention of fires and accidents, some individuals create their own hazards. Most of us do not seem to be able to profit from the experience of others; we assume that "it will not happen to us." This fact is brought out in reports of fires, which show the significance of faulty acts of individuals. Those which have been the cause of many fires and fatalities include smoking in bed; cleaning with gasoline; placing hot ashes in combustible containers; leaving electric irons connected; replacing electrical fuses with fuses of greater capacity or, worse, substituting pennies or tin foil; throwing burning smoking materials into wastebaskets or combustible containers or among easily ignited materials; starting fires with kerosene or gasoline; lighting matches in space containing flammable vapors or near their source; permitting the accumulation of combustibles in attics, closets, and basements.

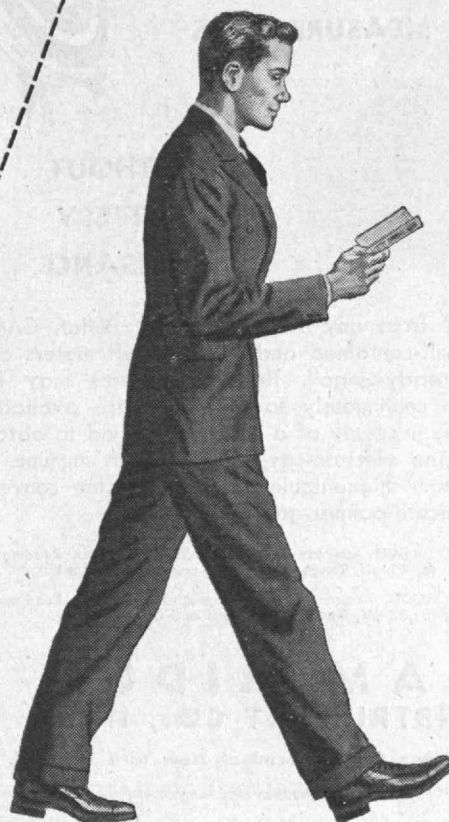
Such acts have in the past been charged to carelessness, and this explanation doubtless holds for many well-meaning but momentarily thoughtless people, yet for others it is a wholly inadequate and superficial evaluation. Some people are definitely callous about their own safety and have little or no consideration for the safety or rights of others.

The observance of the foregoing suggestions for the planning and construction of homes and adherence to the principles of safety in the purchase of equipment as set forth in this article, combined with the exercise of ordinary precautions, should result in a reasonably safe dwelling for the occupants without undue increase in cost. Additional safeguards which might be suggested for special cases might not be justified for common use because of the additional cost.

In all probability, there will be a period following the war during which millions of veterans and wartime employees will be required to readjust themselves to peacetime pursuits and to determine upon the location where they desire to live. In this transition period, a solution to the housing problem might be accomplished through

(Concluded on page 66)

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Highlights of the G. I. Bill of Rights —

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SAFETY IN POSTWAR HOMES

(Concluded from page 64)

the construction of safe houses on a rental basis, with a view to eventual sale of the properties at a reasonable profit when conditions become stabilized. Such a comprehensive plan of construction, however, would require the assistance of well-financed organizations. Experience has shown that houses constructed for sale on a speculative basis do not ordinarily include the safeguards discussed in this article. It is believed possible for financially responsible organizations to conceive and execute plans that would be effective in producing houses to satisfy both safety and economic requirements.

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¹³ Building Code Recommended by the National Board of Fire Underwriters, 85 John Street, New York, N. Y. 1943 edition.

¹⁴ Recommended Building Code Requirements for New Dwelling Construction. Building Materials and Structures Report BMS88, National Bureau of Standards, 1942. (Washington: Government Printing Office, 20 cents.)

¹⁵ The Comparative Life, Fire, and Explosion Hazards of Common Refrigerants. Miscellaneous Hazard No. 2375 (1933), Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago, Ill.

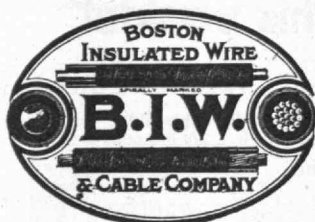
¹⁶ Building Code Recommended by the National Board of Fire Underwriters, 85 John Street, New York, N. Y. 1943 edition, Article XI, "Chimneys, Flues and Vents," pages 186 to 201.

¹⁷ Accident Facts (1943 edition). National Safety Council, 20 North Wacker Drive, Chicago, Ill. 50 cents.

¹⁸ "Fire Hazard of Domestic Heating Installations," by George Q. Voigt, National Bureau of Standards, *Journal of Research*, XI (September, 1933), Research Paper 596.

¹⁹ Fireplaces and Chimneys. Farmers' Bulletin No. 1889 (1941), United States Department of Agriculture. (Washington: Government Printing Office, 40 cents.)

²⁰ Prevention and Control of Fire Losses — a Handbook, by Frank L. Ahern. United States Department of the Interior, National Park Service, 1943. (Washington: Government Printing Office, 10 cents.)



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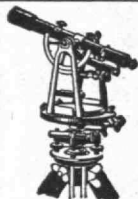
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THE TREND OF AFFAIRS*(Concluded from page 22)*

and to enhance the effectiveness of bright colors through contrast, are given low chromas and values and are done in relatively neutral hues, for the reverse purpose of rejecting attention. One interesting point in the use of color codes for whatever service is that they can give almost as good performance with color-blind people as with normal people. This is not by chance, but because red and green — the two colors which most impaired eyes confuse and can't tell from gray — are not used for anything except fire extinguishers and first-aid kits.

In the long run, any industrial use of color, however scientific, must depend for its success upon the complete agreement of manufacturing plants everywhere to standardize upon definite conventions. Color is a remarkably powerful language when it is pure. And because it is so powerful, it becomes a potential menace when it is corrupted by local "vernacular" or variation in the meaning of its symbols. The big job ahead for our efficiency engineers is to sit down and agree upon a color code which will be as universal as our prevailing style of dress. An excellent beginning has been made.

THE INSTITUTE GAZETTE*(Continued from page 40)*

a member for 70 years, as well as other organizations, passed resolutions expressing appreciation of his long and distinguished service in the mining and metallurgical professions.

Adviser

PAUL M. CHALMERS, Assistant Professor of English and Assistant Director of Admissions, has been appointed adviser for foreign students. Through his work in the Admissions Office, he has come to be familiar with the large number of foreign students at the Institute and has studied their problems and opportunities while they are students in this country. Professor Chalmers will centralize in his office information relating to foreign students

(Concluded on page 70)

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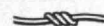
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THE INSTITUTE GAZETTE

(Concluded from page 68)

and will be available to consult with these students whenever they wish to seek counsel on their special problems.

Professor Chalmers was graduated from Brown University in 1922 and later received the degree of master of arts from that university, majoring in English literature. He has taught English at the Peddie School, Lafayette College, and Brown University. Shortly after his graduation, Professor Chalmers spent a year at sea, during which time he visited several countries of the Orient, including Japan, China, and the Philippines.

At the present time the Institute has 278 students from foreign countries, a considerable increase over its normal foreign population, which in the 20 pre-war years averaged about 200. Most of this increase represents groups of students sent to the Institute by their governments for special courses of study. There are sizable groups of naval officers, for example, from China, Turkey, and several South American countries, who are taking a special course in naval architecture and marine engineering. The largest foreign delegation at the Institute is from China and the next largest from Turkey. There are considerable representations from the countries of this hemisphere, particularly Canada, Venezuela, Brazil, Peru, Cuba, Argentina, and Mexico.

Farewell Sweep

DEFEATING Harvard and Cornell in a triangular regatta on the Charles, September 23, Technology crews brought to a cheering conclusion the regime of Robert G. Moch, head coach of crew since 1939, who has resigned to return to his home state of Washington, where he will enter business. In the regatta, Cornell took second place in all the races. James B. McMillin will succeed his Olympic crew mate of 1936 as head coach at the Institute.

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MAIL RETURNS

(Concluded from page 14)

One reason why the French war department was so slow to deal with the Wrights was that the failures of the Ader tests were very fresh in the minds of the department heads. They didn't want to risk all the criticism that would be heaped on them if there should be another costly fiasco.

I think that what led to the Ader report's finally being published was that friends of Santos-Dumont brought pressure on the war department. They wanted to make clear that Santos-Dumont was the first to fly in France. (Many in France still think he was the first to fly *anywhere*, though of course that is not true.)

I hope these few lines may serve to correct your misinformation. And I hope that when France is restored to its former glory and beautiful way of life, you and I may meet there to discuss this and other topics of interest. *Vive la France!*

Peninsula, Ohio

We Blush

FROM GERARD CHAPMAN, '36:

In the June issue of *The Review*, I noticed with interest the frontispiece purporting to picture "Ore loaders handling iron ore at Duluth." Duluth is but 20 miles from here, and I have seen the ore docks many times and can speak with certainty when I say that such structures just are not used here, in Superior across the bay, or in Two Harbors up the north shore, to load ore. Instead, the ore is dumped from cars into pockets lining the massive docks, and it falls by gravity directly into the hold of the vessel. There is no need for the conveyers pictured.

If you will look into the matter, I think you will find that the structures pictured are ore *unloaders* on the lower Great Lakes, where the boats discharge their cargoes. There, it is manifestly impossible to unload by gravity, so the type of machinery shown is employed. Somebody must have mislabeled a number of such photographs, for I saw pictured in the *New York Times* (even that august paper can err) a vessel supposed to be unloading iron ore at Sault Ste Marie. That, I claim, is also not so, for I am sure there are no furnaces at the Soo, though millions and millions of tons of ore traverse the locks there.

Cloquet, Minn.

FROM WILLIAM C. LOUNSBURY, '03:

I was surprised that there was no correction concerning your frontispiece in the June number showing alleged ore-handling equipment at Duluth. To find the apparatus pictured, one would certainly have to go to the lower lake ports, perhaps 1,000 miles from Duluth.

Duluth, Minn.

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QUESTIONNAIRE

Members of the Classes from 1920 through 1944 are urged to return the questionnaire which was mailed to them in July. If you have lost yours, we shall be glad to send you another. We need a good return in order that the statistics being compiled may be based on complete information.

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TECHNOLOGY MEN IN ACTION

THE ALUMNI FUND — ITS PROBLEMS AND GROWTH

POSTWAR PROGRAM

A MAJOR portion of the President's Report of this year is devoted to a discussion of the Institute's postwar program. It is reported at some length elsewhere in this issue. A comprehensive and inspiring plan, it should give every Technology man a feeling of added pride.

All of us are familiar in some degree with Technology's past achievements in the fields of education and research. We have yet to learn of its contributions to the winning of this war, but the bare outline in Dr. Compton's report gives an indication, if only of its size and scope. The curtain has now been raised upon the future. It is one of increased peacetime service to state and nation; of a continuing flow of men who, in addition to having received the best possible technological training, have also had the advantages of a well-rounded cultural background; and of broad-visioned research programs which, while primarily educational, should contribute greatly to the American way of life.

Many of these plans cannot become operative without additional funds. The magnitude of the expenditures required is shown in the report. Since its inception almost all of our annual gift to the Institute through the Alumni Fund has been set aside for just such postwar uses. We now have a clear picture of the need. Our contributions will be an important factor in satisfying a part of that need.

The Clubs Sweepstakes

It's been a long lap since we last reported the standings in the Big Race, away back in July. It would seem as though positions might have altered radically in that length of time, but the reverse is true. There has been surprisingly little change, the first five Clubs being in exactly the same order. Pittsburgh is away out ahead with almost two-thirds of its members contributing, and Kansas City still has the largest average by far. All of the Clubs but one are well ahead of the general average in contributors, all but three in amount.

We're rounding the last turn into the stretch now. Anything can happen. It's that kind of a race.

	<i>Per cent of Contributors *</i>	<i>Average Contribution</i>
Western Pennsylvania (Pittsburgh).....	62	\$16.10
Rhode Island (Providence).....	53	14.00
Philadelphia.....	50	18.20
Northern New Jersey (Newark).....	49	14.30
Cincinnati.....	38	11.10
Central Pennsylvania (Harrisburg).....	33	11.00
Buffalo.....	31	15.50
Chicago.....	30	14.40
Southwestern Association (Kansas City).....	28	42.00
Northern Texas (Dallas).....	23	10.50
Alumni body as a whole.....	24	\$13.10

*Based on number of active members.

TECHNOLOGY MEN IN ACTION

M.I.T. MEN AT WAR

Up to September 30 over 6,279 Institute Alumni, including 27 Admirals, 1 Commodore, and 74 Generals, were recorded as being in the active naval or military services of the United Nations. The new additions this month are Rear Adm. Frank E. Beatty '22, Maj. Gen. Roger B. Colton '20, Brig. Gen. George M. Badger '28, Brig. Gen. Royden E. Beebe, Jr., '36, and Brig. Gen. Julius K. Lacey '36. There were 96 Alumni who had already been decorated.

Additions and corrections to the listings which have previously appeared, beginning two years ago with the issue of November, 1942, will continue to be published in future issues of The Review. As a matter of convenience, promotions and corrections in the rank previously given are grouped under a single heading, "Changes in Rank." The Review Editors are greatly indebted to the many Alumni and other readers who are continuing to co-operate so helpfully in reporting inevitable errors of omission and commission which they note in these listings.

NEW DECORATIONS

- | | | | |
|--|--|---|--|
| <p>1915 Tobey, James A., Lt. Col., U.S.A., Two Bronze Stars — Italy and Sicily.</p> <p>1917 Crisp, Frederick G., Rear Adm., U.S.N., Legion of Merit.</p> <p>1920 Whitten, Lyman P., Brig. Gen., U.S.A., Legion of Merit.</p> <p>1921 Scott, Stanley L., Brig. Gen., U.S.A., Distinguished Service Medal.</p> <p>Worsham, Ludson D., Brig. Gen., U.S.A., Legion of Merit.</p> <p>1922 *Bainbridge, William W., Capt., U.S.A., Purple Heart; Silver Star — Gallantry in action off the Coast of France.</p> <p>1923 *Slaughter, Willis R., Col., U.S.A., Silver Star; Purple Heart.</p> <p>1929 Rush, Hugo P., Col., U.S.A., Legion of Merit — Middle East.</p> <p>1932 Person, John L., Col., U.S.A., Legion of Merit.</p> <p>1933 Madsen, Ingvald E., Lt. Col., U.S.A., Legion of Merit.</p> <p>1934 *Becker, Robert C., 1st Lt., U.S.A., Purple Heart and Oak Leaf Cluster.</p> <p>1936 Skidmore, Wilbur M., Lt. Col., U.S.A., Legion of Merit.</p> <p>1937 Pickard, Oliver J., Lt. Col., U.S.A., Legion of Merit — Southwest Pacific.</p> <p>1938 Dent, Frederick R., Jr., Col., U.S.A., Silver Star — for action over Germany.</p> <p>Oldfield, Homer R., Jr., Capt., U.S.A., Legion of Merit.</p> <p>1940 Livingston, Chester G., Lt., U.S.N., Air Medal.</p> <p>Meyer, Herman L., Capt., U.S.A., Air Medal and Eight Oak Leaf Clusters.</p> <p>Nelson, Robert S., Lt., U.S.N., Distinguished Flying Cross; Silver Star; Air Medal — Truk, South Pacific.</p> <p>Pomeroy, William W., Lt., U.S.A., Air Medal and Oak Leaf Cluster.</p> <p>*Schuerch, Conrad, Jr., Lt., U.S.A., Air Medal and Oak Leaf Cluster; Purple Heart.</p> <p>1941 Sieglaff, William B., Comdr., U.S.N., Navy Cross and Gold Star in lieu of second Navy Cross; Silver Star and two Gold Stars in lieu of a second and third Silver Star — Pacific.</p> <p>1942 Connolly, Thomas F., Comdr., U.S.N., Distinguished Flying Cross.</p> <p>1943 Herzog, Frederick C., Jr., 1st Lt., U.S.A., Distinguished Flying Cross; Air Medal and Oak Leaf Cluster.</p> <p>Shamban, Melvin S., 2nd Lt., U.S.A., Air Medal.</p> <p>*Willcox, Julian, Capt., U.S.M.C., Air Medal; Purple Heart — South Pacific.</p> | <p>1932 Bellizia, John A., Capt.</p> <p>1933 Lane, Benjamin B., T. Sgt.</p> <p>Harvey, Gardner, Pvt.</p> <p>Madsen, Ingvald E., Lt. Col.</p> <p>Pratt, Gordon C., 1st Lt.</p> <p>Way, Robert F., 1st Lt.</p> <p>1934 Smith, Wilbur L., Pvt.</p> <p>1935 Drury, G. Murlin, Pvt.</p> <p>Duff, Alan D., Jr., Lt.</p> <p>Flink, Ellis M., Corp.</p> <p>Gwiazda, Henry J., Pvt.</p> <p>McCarren, Edward C., Sgt.</p> <p>*Pagliuca, Salvatore, Maj.</p> <p>Staunton, Jack L., 2nd Lt.</p> <p>Suchors, William J., Capt.</p> <p>1936 Erwin, Robert O., Capt.</p> <p>Friedlaender, Hermann, Pvt.</p> <p>Gregory, Frank S., Jr., 1st Lt.</p> <p>McKittrick, Alan C., 1st Lt.</p> <p>Whittier, Paul E., Pvt.</p> <p>1937 Maddock, James W., Sgt.</p> <p>Morrison, Ralph D., Jr., Lt.</p> <p>1938 McClelland, James, Pvt.</p> <p>1939 Cohen, Irving, Pvt.</p> <p>Dadakis, George S., Capt.</p> <p>Grossman, Arthur S., Lt.</p> <p>Howland, James C., Capt.</p> <p>Naugle, Richard G., Pvt.</p> <p>1940 Casazza, John B., Lt.</p> <p>Hutson, William M., Capt.</p> <p>Keefe, Lloyd T., O.C.</p> <p>Kirk, Edwin R., Capt.</p> <p>MacKerron, John L., 2nd Lt.</p> <p>Magnusson, Frederick S., Pvt.</p> <p>Stanley, Robert C., Lt.</p> <p>Wheeler, C. Herbert, Jr., Capt.</p> <p>1941 Foote, Irving J., 1st Lt.</p> <p>Knox, John D., Pvt.</p> <p>Latin, Kermit, Pvt.</p> <p>Wales, Charles A., Jr., Capt.</p> <p>1942 Auerbach, Gabriel I., Pvt.</p> <p>Beaumont, Davis W., Capt.</p> <p>Bolhofer, William A., Pvt.</p> <p>Haskins, Robert, Jr., A.C.</p> <p>Kneeland, Walter M., Pvt.</p> <p>Rogers, John D., Pvt.</p> <p>Smith, Edward W., Jr., 2nd Lt.</p> <p>Weatherill, Philip H., T. Sgt.</p> <p>Weiss, Leon H., Pvt.</p> <p>1943 Bryant, William B., 1st Sgt.</p> <p>Burrage, William C., Pvt.</p> <p>Fletcher, Lindsay, Jr., Lt.</p> <p>Glore, Charles F., Jr., A.C.</p> <p>Granville, Arthur C., T.3c.</p> <p>Haas, Ward J., 2nd Lt.</p> <p>Hall, Sidney L., Lt.</p> <p>Hettich, Bedrich V., Pvt.</p> <p>Higgins, Stephen P., Jr., Lt.</p> <p>Lichtenstein, Roland M., Pvt.</p> <p>Shamban, Melvin S., 2nd Lt.</p> <p>Smith, Frederick C., 2nd Lt.</p> <p>Spencer, Herbert W., Jr., A.C.</p> <p>2-44 Baldauf, Gunther H., Pvt.</p> <p>Bennett, Frank K., Corp.</p> <p>Boschen, William O., A.C.</p> <p>Boyajian, Aram H., Pfc.</p> <p>Bransby, Seth E., Lt.</p> <p>Buchanan, James P., 2nd Lt.</p> <p>Buzzard, William S.</p> <p>Corry, Andrew F., Jr., Pvt.</p> <p>Cummings, Robert H., Pvt.</p> <p>Eagleton, Lee C., 2nd Lt.</p> <p>Felix, Stanley M., Pvt.</p> <p>Fotioe, George, Pvt.</p> <p>Fuerman, Arthur, Pvt.</p> <p>Harges, Herman J., Pvt.</p> <p>Henion, William C., 2nd Lt.</p> <p>Johnson, John M., Pvt.</p> <p>Kann, Alexander, Jr., 2nd Lt.</p> <p>Kennelly, William J., Jr., A.C.</p> <p>Lindemann, Carl, Jr., Lt.</p> <p>Litchfield, Alfred F., 2nd Lt.</p> <p>Loughman, Raymond A.</p> <p>Lucht, Kenneth G.</p> <p>Lynch, John B., Pvt.</p> <p>McClindiss, Robert K., 2nd Lt.</p> <p>McCurdy, William J., Pvt.</p> <p>MacDowell, Gordon P.</p> <p>McFaul, Malcolm, Jr., A.C.</p> <p>Macintosh, Arnold, Jr., Pvt.</p> <p>MacWilliams, Harold F., Jr., Corp.</p> | <p>Maier, Henry G., Pvt.</p> <p>Manning, George H., Corp.</p> <p>Manson, Wallace J., 2nd Lt.</p> <p>Margolskee, Justin M., Pvt.</p> <p>Markus, Alvin A., Pvt.</p> <p>Martin, Jay J., Jr., Pvt.</p> <p>Martin, John G., Pvt.</p> <p>Masnik, Walter, Pvt.</p> <p>Meier, Robert L., Lt.</p> <p>Meny, Robert B., 2nd Lt.</p> <p>Meyer, Mortimer W., Jr., 2nd Lt.</p> <p>Mezzatesta, Francis</p> <p>Michaels, Alan S., Corp.</p> <p>Morgan, Thomas H., Pvt.</p> <p>Moyer, Edwin L., Pvt.</p> <p>Neff, James A., Pvt.</p> <p>Nelson, Paul G., 2nd Lt.</p> <p>Noyes, Trigg, Pvt.</p> <p>Obes, Andrew N., Pvt.</p> <p>O'Brien, Raimund F., Jr., Corp.</p> <p>Openshaw, Albert, Pvt.</p> <p>Parkinson, Samuel D.</p> <p>Peck, Robert D., Lt.</p> <p>Peters, George O., Corp.</p> <p>Peterson, Arthur F., Jr., 2nd Lt.</p> <p>Peterson, Donald R., 2nd Lt.</p> <p>Peterson, Edward H., Pvt.</p> <p>Phillips, Donald B.</p> <p>Phillips, W. John, Jr., Lt.</p> <p>Philpott, Herbert L., 2nd Lt.</p> <p>Picardi, Egidio A.</p> <p>Picton, Dean C., 2nd Lt.</p> <p>Pietsch, Robert B., Pvt.</p> <p>Plachta, Robert A., O.C.</p> <p>Post, John F., O.C.</p> <p>Prasinos, Nicholas</p> <p>Pratt, Randall N., Pvt.</p> <p>Rabinowitz, Bernard, O.C.</p> <p>Rambusch, Harold W., Jr., Lt.</p> <p>Raynsford, Vance G., 2nd Lt.</p> <p>Redlien, William H., Jr., Pvt.</p> <p>Reid, William C.</p> <p>Reilly, John P.</p> <p>Rice, Henry G., Pvt.</p> <p>Robinson, Harry D., Jr., Pvt.</p> <p>Robinson, Paul M., Jr., A.C.</p> <p>Robinson, Richard L., Cadet</p> <p>Rodeman, Will B., Lt.</p> <p>Roe, John W., Lt.</p> <p>Roessel, Theodore B., Pvt.</p> <p>Roos, Edwin G., Cadet</p> <p>Root, Douglass E., Jr.</p> <p>Ross, Arthur M., T.5c.</p> <p>Ross, Leroy E., Jr., Pvt.</p> <p>Ruoff, James S., Pvt.</p> <p>Rupp, Norman N., Jr., Pvt.</p> <p>Salisbury, William P.</p> <p>Saulnier, George S., Pvt.</p> <p>Schmitz, Andrew J., Jr., O.C.</p> <p>Schneider, Caspar C., Jr.</p> <p>Schnell, Eugene A., A.C.</p> <p>Schnitzer, Harold J., Pvt.</p> <p>Schuhle, Harold W., Corp.</p> <p>Schulman, Norman S., Corp.</p> <p>Schutte, George A., Lt.</p> <p>Scott, William B., 2nd Lt.</p> <p>Seaman, Richard E., A.C.</p> <p>Sebell, Norman I., 2nd Lt.</p> <p>Seferian, Ralph, Pvt.</p> <p>Seymour, Albert J.</p> <p>Shaw, George R., 2d, S. Sgt.</p> <p>Shepard, Henry C., A.C.</p> <p>Shrier, Joseph, Pvt.</p> <p>Skelskie, I. Stanley, A.S.</p> <p>Slifer, John E., Pvt.</p> <p>Smith, John F., Jr., 2nd Lt.</p> <p>Smith, Roland B., Pvt.</p> <p>Spalding, John D., Pvt.</p> <p>Spalding, William F., Cadet</p> <p>Stillman, Timothy G., Pvt.</p> <p>Storrs, Robert E., Pvt.</p> <p>Strecker, Henry C., O.C.</p> <p>Tashjian, Albert V., A.C.</p> <p>Tisdale, Pierre A., 2nd Lt.</p> <p>Toland, John T., Pvt.</p> <p>Tscherfing, William E., 2nd Lt.</p> <p>Turner, Harry W., Jr., Sgt.</p> <p>Turner, Walter W., 2nd Lt.</p> <p>Tyberghein, Edmond J., 2nd Lt.</p> <p>Ullman, Joseph L., Pvt.</p> <p>Urano, Sabato A., Corp.</p> <p>Van Valen, Maxwell, A.C.</p> | <p>Varnerin, Lawrence J., Jr., 2nd Lt.</p> <p>Veitch, Robert A., Pvt.</p> <p>Wagman, Joel I.</p> <p>Wagner, Richard V., 2nd Lt.</p> <p>Walke, Frank H., Corp.</p> <p>Walker, Edward B., 3d, Pvt.</p> <p>Wareham, Richard R., 2nd Lt.</p> <p>West, Alden A., A.C.</p> <p>White, John A., Pvt.</p> <p>White, Lawrence S., O.C.</p> <p>Wiggins, Richard F., 1st Lt.</p> <p>Williams, Edward H., 3d, Corp.</p> <p>Wilner, Burton L., A.C.</p> <p>Wood, Robert H., O.C.</p> <p>Woodburn, James, 3d, A.C.</p> <p>Woodworth, Chester L., Pvt.</p> <p>Woody, George DeW., Pvt.</p> <p>Wunsch, Eric M., Pvt.</p> <p>Wyruhowski, Edward P., Jr., 2nd Lt.</p> <p>Zifferer, Lothar R.</p> <p>1945 Sabel, Robert H., A.C.</p> <p>1946 Dixon, Robert E., 2nd Lt.</p> <p>Stevenson, John G., Pvt.</p> |
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U.S.N.

- 1918 Hilbert, William E., Capt.
- Roy, Joseph E., Lt. Comdr.
- 1919 Bennett, William F., Jr., Lt.
- 1922 Meech, Randall W., F.C.2c.
- 1923 Herd, Richard G., Lt.
- 1924 Benedict, Howard C., Jr., Lt.
- Mountjoy, Joseph F., Lt.
- 1926 Kaplan, Leonard, Capt.
- Wakefield, Newton, Lt. Comdr.
- Waller, George W. D., Jr., Lt. Comdr.
- 1928 Cade, Harry F., Jr., Lt.
- Hagerty, Joseph M., Lt.
- 1929 Ewan, Arnold W., C.E.M.
- Nicholson, G. J. Guthrie, Lt. (j.g.)
- 1930 Roberts, Harold B., Lt.
- Wildes, Arthur F., Lt. (j.g.)
- 1931 McCoy, Eleanor H., Lt. Comdr.
- Perry, George A., Lt. Comdr.
- Wischmeyer, Kenneth E., Lt. (j.g.)
- 1932 Hall, Addison S., Lt. (j.g.)
- Klein, G. Robert, Lt. (j.g.)
- Sherwood, George H., Lt.
- Stowell, Joseph M., Lt.
- Thal, Donald E., Lt.
- 1933 Anderson, Charles G., Lt.
- Barry, Peter, Lt. Comdr.
- 1934 Bascom, Guy C., SK.3c.
- Bissell, Kenneth B., Lt.
- Brewster, George W. W., Lt.
- Hill, Charles F., Lt. (j.g.)
- 1935 Boyd, William, Jr., Ens.
- Bradner, John A., Lt. (j.g.)
- Gruzen, Benjamin M., C.C.M.
- Muldowney, Francis W., Jr., Lt. (j.g.)
- 1936 Dalton, William K., Lt.
- Hobson, Charles, Ens.
- Hulbert, Edwin F., Jr., S.1c.
- Miner, S. Norton, Lt. (j.g.)
- 1937 Bunzel, Herbert F. W., P.1c.
- Hennessey, Thomas F., Sp.2c.
- 1938 Allen, Henry V., Jr., Ens.
- Campbell, Robert V., Ens.
- Innamorati, Anthony W., Ens.
- Taylor, Richard B., S.1c.
- 1939 Eldredge, A. Grenville, Lt. (j.g.)
- McKeag, Malcolm F., Ens.
- Swanson, Carl K., Ens.
- 1940 Zelden, Camille A., A.S.
- Brown, David, Ens.
- Davis, Harlan H., Ens.
- Hailey, William H., Ens.
- Hammesfahr, Frederic W., Ens.
- 1941 Rosse, J. Martin, Ens.
- Blake, Robert W., A.C.
- Booth, Alfred B., Jr., Ens.
- Brown, James W., Lt.
- Gaylord, Harry G., A.S.
- Johnson, Hamilton, Ens.
- Loesch, Buchanan, Ens.
- Murphy, Edward F., S.2c.
- Roddis, William H., S.1c.

NEW LISTINGS

U.S.A.

- 1921 Moss, Lewis W., Maj.
- 1922 Conrod, Robert L., Maj.
- Ham, Herbert C., Lt.
- Kennedy, James H., Jr., Capt.
- 1924 Griffiths, Leonard L., Capt.
- 1926 Epstein, Malcolm B., Lt.
- Peterson, Chester, Maj.
- 1927 Hinrod, Edwin H., Capt.
- 1928 Lang, George R., Lt.
- Sabot, George, T. Sgt.
- 1929 Ellsworth, John B., Lt.
- 1930 Luery, Alfred M., Capt.
- Simmons, John A., S. Sgt.
- Taylor, Worthen H., 1st Lt.
- 1931 Smith, L. Sheldon, 1st Lt.

1941 Solar, Samuel L., *Ens.*
Sosa, Peter J., *S.1c.*
Stein, Irving, *Ens.*
1942 Austin, Robert M., *Ens.*
Cresap, Charles N., *Ens.*
Curry, Frank B., Jr., *A.C.*
Gould, Richard H., *Ens.*
Hart, George H., *Lt.*
Hart, James M., *Ens.*
Kelly, George A., *Lt. (j.g.)*
Kline, Joseph H., *Ens.*
Lewis, Sumner D., *Ens.*
May, Marvin M., *Ens.*
Stein, Donald, *Ens.*

1943 Baumberger, John R. R., *Ens.*
Duboc, Charles A., *Ens.*
Freedman, George, *S.1c.*
Leader, James W., *Mid.*
Scott, Douglas, *Ens.*
Stetson, John C., *Ens.*
Tyrrell, John F., *Ens.*
Wenisch, Werner J., *S.1c.*
Wittels, John R., *S.1c.*

2-44 Abbott, George W., 3d, *Ens.*
Adams, John H., *Ens.*
Ball, Daniel A., *Lt. Comdr.*
Blackshaw, Bromley, *Ens.*
Brownell, Gordon L., *Ens.*
Buchorn, Kenneth C., *Ens.*
Childs, John N., *Ens.*
Collins, David V., *Ens.*
Crowley, Joseph C., *A.S.*
Daggett, Maxey D., Jr., *Ens.*
Feldman, Sidney N., *Ens.*
Frey, David B., *Ens.*
Gibb, John R., Jr., *Mid.*
Gilchrist, John H., *S.1c.*
Gillen, Robert A., *A.S.*
Greenwood, Phillip E., *Lt. Comdr.*
Holloway, John T., *Ens.*
Kingsbury, Bruce F.
LaPenta, Samuel C., *Ens.*
Lindsay, William R., *Mid.*
McClave, James S., *Ens.*
McKelvey, James R., *Ens.*
Nelson, Kenneth W., *Ens.*
Nelson, Lawrence E., *Ens.*
Nichols, John R., Jr., *A.S.*
Nicolait, Robert, *A.S.*
Nolte, Walter D., *R.T.3c.*
Norman, William E., *Ens.*
Oppenlander, Robert, Jr., *Ens.*
Pease, Robert L., *Ens.*
Peaslee, David C.
Pritchard, Elbert B., *Mid.*
Pyle, Oden F., *Ens.*
Raney, George N.
Rehler, Kenneth M., *Mid.*
Rinaldo, Peter M., *Ens.*
Robillard, Geoffrey, *Mid.*
Rockett, John A., *A.S.*
Roden, Carl C., Jr., *Ens.*
Rosenberg, Marshall R., *Ens.*
Sadler, William C., *Ens.*
St. Germain, James J.
Salisbury, DeRoss, Jr.
Sard, Eugene W., *Mid.*
Schilling, Spencer A., *Ens.*
Schnugg, George M., *Mid.*
Schoenwald, Ernest T., *Ens.*
Schwartz, William G., *Ens.*
Shakely, Robert P., *Ens.*
Signell, Warren I., *A.S.*
Smith, Douglas B., *Ens.*
Snyder, Clyde C., Jr., *Ens.*
Sommer, Harvey R., *Mid.*
Sonenshein, Nathan, *Lt.*
Spero, Caesar A., *A.S.*
Stewart, William S., 3d, *Mid.*
Stryker, John E., Jr., *Ens.*
Szykiewicz, Anthony J., *Ens.*
Tagen, Warren B., *Mid.*
Taylor, Harlan D., *Ens.*
Tonner, Richard C.
Tuttle, John A., *Ens.*
Ultes, Carl, Jr., *Ens.*
Vail, Richard M., *Ens.*
Vallone, Andrew M., *F.C.3c.*
Walcott, Fredman J., Jr., *Ens.*
Wald, John R., Jr., *Ens.*
Ward, Dixon H., *A.C.*
Warsaw, Stanley W., *Ens.*
Washburn, Seth H., *Ens.*
Waters, John M., *Lt.*
Whiffen, Richard E., *Ens.*
White, Richard D., *Lt. Comdr.*
Yablong, David S., *Ens.*
1945 Anderson, Brent R., *S.1c.*

U.S.C.G.

1925 Russell, Joseph E., *S.1c.*
1932 Baxter, Arnold H., *M.M.1c.*
2-44 Tonner, Richard C., *F.C.3c.*

U.S.M.C.

1935 Porter, Malcolm A., 2nd *Lt.*
1941 Pepper, David H., *Capt.*
2-44 Lindorff, David P., *Pvt.*
Miller, Wayne E., 2nd *Lt.*

CANADA

Army

1940 Ross, John K., *Capt.*

Navy

1939 Graham, R. Barry, *Lt.*

CHINA

Army

1940 Hwa, William Z., *Capt.*
1942 Shieh, An H., *Capt.*

GREAT BRITAIN

Army

2-44 Grant, William D., *F.O.*

CHANGES IN RANK

U.S.A.

1906 deSteiguer, Walter G., *Maj. to Lt. Col.*
1909 Morrill, Arthur B., *Lt. Col. to Col.*
1916 Neilson, Halbert H., *Maj. to Lt. Col.*
1917 Curtin, Enos, *Maj. to Lt. Col.*
1918 Frazier, Walter S., *Maj. to Lt. Col.*
Lippitt, Charles W., *Maj. to Lt. Col.*
1920 Colton, Roger B., *Col. to Maj. Gen.*
1921 Church, Walter E. *Maj. to Lt. Col.*
Crowley, John D., *Capt. to Maj. Gen.*
Green, Roy, *Maj. to Lt. Col.*
Phaneuf, Victor S., *Maj. to Lt. Col.*
Skinner, Richmond H., *Capt. to Maj. Gen.*
1922 Achatz, Francis J., *Capt. to Lt. Col.*
Burrus, Ray C., *Maj. to Lt. Col.*
Gayley, H. Clifford, *Maj. to Lt. Col.*
1923 Allis, William P., *Maj. to Lt. Col.*
Beattie, Malcolm B., *Capt. to Maj. Gen.*
Nisley, Harold A., *Lt. Col. to Col.*
Steele, Gordon H., *Lt. Col. to Col.*
Wilkins, Paul L., 1st *Lt. to Capt.*
1924 Niles, Philip C., *Capt. to Maj. Gen.*
Stansfield, Robert S., Jr., *Capt. to Chap.*
1926 Fogg, George A., *Lt. to Capt.*
1927 Cuthbertson, Harry B., *Maj. to Lt. Col.*
Lunden, Eugene B., *Capt. to Maj. Gen.*
Smith, Charles C., *Maj. to Lt. Col.*
1928 Abbott, Argyle C., *Capt. to Maj. Gen.*
Badger, George M., *Lt. Col. to Brig. Gen.*
Fleming, Anthony, *Capt. to Lt. Col.*
Robinson, S. Crawford, *Capt. to Maj. Gen.*
Sweeney, Francis C., *Maj. to Lt. Col.*
Tandy, Fremont S., *Maj. to Col.*
1929 Baum, Seymour A., *Lt. Col. to Col.*
Turner, Charles A., *T.5c to S. Sgt.*
1930 Andrias, John, 1st *Lt. to Capt.*
Berman, Leslie, 1st *Lt. to Capt.*
Biggane, James F., *Capt. to Maj. Gen.*
Bisson, Reginald A., *Maj. to Lt. Col.*
Davis, Homer L., Jr., *Maj. to Lt. Col.*
Lovejoy, John, *Lt. to Capt.*
Moriarty, John D., *Capt. to Lt. Col.*
Steele, John C., Jr., *Lt. to Lt. Col.*
Tyson, James, Jr., *Capt. to Maj. Gen.*
Ayres, Gilbert B., *Capt. to Maj. Gen.*
1931 Lavrakas, Charles A., *Lt. to Capt.*
1932 Breden, J. Paul, *Lt. Col. to Col.*
Cunningham, Marcus K., *Sgt. to W. O.*
Franklin, Edward C., *Lt. Col. to Col.*
Weston, Thomas, *A.C. to 2nd Lt.*
Yohn, Albert K., 1st *Lt. to Capt.*
1933 Bell, William L., Jr., *Lt. Col. to Col.*
Culverwell, J. Mason, *Lt. to Capt.*
Huston, Wilber B., *Pvt. to Corp.*
Johnson, Ferdinand M., *Lt. to Capt.*
Marshall, Courtenay D., 1st *Lt. to Capt.*
Rumazza, Carlo H., *Capt. to Maj. Gen.*
Shaw, Edwin T., *Corp. to Sgt.*
Stern, John, *Capt. to Maj. Gen.*
1934**Becker, Robert C., 2nd *Lt. to 1st Lt.*
Ehrmann, Winston W., *Maj. to Lt. Col.*
Fidler, Harold A., *Capt. to Maj. Gen.*
Joel, Samuel W., *Capt. to Maj. Gen.*
Kenney, Raymond A., *Lt. to Capt.*
Loring, Albert D., *Capt. to Maj. Gen.*
Morris, Herbert A., Jr., *Capt. to Maj. Gen.*
1935 Burhanna, Howard, Jr., *F.C. to Maj. Gen.*

Colby, John H., *Maj. to Lt. Col.*
Daley, Paul W., *Capt. to Maj. Gen.*
Eng, Jim, *Capt. to Maj. Gen.*
Kiker, John E., Jr., *Capt. to Maj. Gen.*
Morrisette, George C., 1st *Lt. to Capt.*
Nelson, Bernard H., *Capt. to Maj. Gen.*
Parli, Richard L., 1st *Lt. to Capt.*
Sjodahl, Lars H., *Maj. to Lt. Col.*
Thorpe, John, *Capt. to Maj. Gen.*
Austin, John C., *Maj. to Lt. Col.*
Barclay, John A., Jr., *Lt. to Lt. Col.*
Beebe, Royden E., Jr., *Capt. to Brig. Gen.*
Blanchard, Malcolm A., *Lt. to Capt.*
Bryant, Richard U., *Capt. to Maj. Gen.*
Lacey, Julius K., *Col. to Brig. Gen.*
Peel, Arthur R., 2nd *Lt. to 1st Lt.*
Raddin, Harry A., *Capt. to Maj. Gen.*
Skidmore, Wilbur M., *Maj. to Lt. Col.*
Thomas, Ariel A., 1st *Lt. to Capt.*
White, Norman K., *Lt. to Capt.*
1937 Altman, Frederick J., *Capt. to Maj. Gen.*
Ficke, Stanhope B., *Capt. to Maj. Gen.*
Fischel, J. Robert, *Capt. to Maj. Gen.*
Fischer, Edward M., *Capt. to Maj. Gen.*
Fitzpatrick, John P., *Pvt. to T.3c.*
Flinner, Arthur O., *Maj. to Lt. Col.*
McCormack, James, Jr., *Lt. Col. to Col.*
Miller, James F., Jr., *Capt. to Maj. Gen.*
Pellmounter, Thomas V., *Lt. to Capt.*
Pickard, Oliver J., *Maj. to Lt. Col.*
Rohde, Otto J., *Maj. to Lt. Col.*
Thorsen, Robert H., *Capt. to Maj. Gen.*
Vanderman, Edward J., *Lt. to Capt.*
Webster, Howard E., *Maj. to Lt. Col.*
1938 Bartels, C. Richard, *Lt. to Capt.*
Bodeau, Edward, *Lt. to Col.*
Brown, Russell H., *Sgt. to S. Sgt.*
Dolben, William H., Jr., *Lt. to Capt.*
Fisher, Hillary J., *Pvt. to T.3c.*
Forde, Irving W., *Lt. to Capt.*
Grosselinger, Frederick B., *Capt. to Maj. Gen.*
Henderson, Richard, *Lt. to Capt.*
Kovitz, Julius, *Lt. to Capt.*
Roper, Willard, *Maj. to Lt. Col.*
Simenson, Edwin G., *Capt. to Col.*
Smellow, Samuel, *Capt. to Col.*
Vanderhoef, Dean T., *Capt. to Lt. Col.*
Vogel, Paul W., *Lt. to Capt.*
Wallace, Milton I., *Maj. to Lt. Col.*
1939 Beard, William N., *Maj. to Lt. Col.*
Chance, William M., Jr., *Capt. to Maj. Gen.*
Deering, Roland C., *T.3c. to Lt. Col.*
Evans, J. Warren, *Capt. to Maj. Gen.*
Fabacher, Lawrence J., *Lt. to Capt.*
Ferris, John A., *Capt. to Maj. Gen.*
MacMillan, Latimer W., Jr., *Lt. to Capt.*
Morin, Edward G., *A.C. to Lt. Col.*
Olson, Creighton B., *Lt. to Capt.*
Baral, Paul, 1st *Lt. to Capt.*
1940 Borg, Milton H., *A.C. to 2nd Lt.*
Bucklin, Albert G., *T.5c to Sgt.*
Chapman, Jack W., *Maj. to Lt. Col.*
Daniel, John H., *Lt. to Capt.*
Davis, Ellis O., *Maj. to Lt. Col.*
Davis, Robert J., 1st *Lt. to Capt.*
Duffett, N. Bruce, *Lt. to Capt.*
Gerges, Richard D., *Capt. to Maj. Gen.*
Jackson, Kingsbury T., 1st *Lt. to Capt.*
Jensen, Paul O., *Lt. to Capt.*
Kirkpatrick, Wylie C., *Lt. to Capt.*
Kirsten, Elwyn N., *Maj. to Lt. Col.*
Knowland, Raymond S., *Pvt. to T.5c.*
Lobban, Fred P., *Lt. to Capt.*
Manlove, Almon W., *Capt. to Lt. Col.*
Newcomb, Bradley L., *Lt. to Capt.*
Pearson, Robert H., *Capt. to Maj. Gen.*
Sabbagh, Edward N., *Cadet to 2nd Lt.*
Schneider, Jacob, *Pvt. to Corp.*
Seim, Edwin H., *Lt. to Capt.*
Thomas-Stahle, James I., *Lt. to Capt.*

1941 Campbell, Thomas C., Jr., *Lt. to Capt.*
Cole, Frederick J., *Lt. to Maj. Gen.*
Gabel, Herman E., Jr., *Lt. to Capt.*
Heist, John C., *Capt. to Maj. Gen.*
Jones, William W., *Capt. to Col.*
Kopp, Anatole, *Pvt. to Corp.*
Leonard, Albert C., *A.C. to 2nd Lt.*
Little, Ernest L., *Lt. to Capt.*
Radcliffe, Harold, *Capt. to Maj. Gen.*
Wagner, Victor K., Jr., *Lt. to Maj. Gen.*
Wasserman, Harry H., *Lt. to Capt.*
1942 Baird, Warner G., Jr., *Capt. to Maj. Gen.*
Brightman, Henry S., *Lt. to Capt.*
Brown, Monroe R., *Capt. to Maj. Gen.*
Crowley, Thomas T., *Capt. to Maj. Gen.*
Hayward, Clyde F., *Lt. to Capt.*
Hughes, Richard R., *Lt. to Capt.*
King, Frederick M., *Lt. to Capt.*
Marriner, Ernest C., Jr., *Pvt. to 2nd Lt.*
Miller, William H., *Capt. to Maj. Gen.*
Moncada, Valdo V. J., *Lt. to Capt.*
Moseley, Elwyn A., 1st *Lt. to Maj. Gen.*
Olsen, Fredrich H., 2nd *Lt. to 1st Lt.*
Plant, Howard L., *Lt. to Capt.*
Root, John D., 1st *Lt. to Capt.*
Seaton, William B., 2nd *Lt. to 1st Lt.*
Stankins, Victor H., *Lt. to Capt.*
Steele, Charles B., *Lt. to Capt.*
Stewart, Clarence A., 2nd *Lt. to 1st Lt.*
Zeitzi, Carl, *Lt. to Capt.*
1943 Reese, Jack W., 2nd *Lt. to 1st Lt.*
Smith, Frank S., Jr., *Pvt. to 2nd Lt.*
2-44 Becker, Melvin, *Pvt. to 2nd Lt.*
Bessen, Seymour, *Pvt. to Lt.*
Biedenbarn, Lawrence C., Jr., *Pvt. to 2nd Lt.*
Botten, William H., *Pvt. to Lt.*
Broderie, Stuart C., *Pvt. to 2nd Lt.*
Brotsky, Harold M., *Pvt. to Corp.*
Daggett, Norman L., 2nd *Lt. to 1st Lt.*
Eymann, Carl E., Jr., 2nd *Lt. to 1st Lt.*
Fisher, Robert G., *Pvt. to 2nd Lt.*
Johnson, John F., *Pvt. to 2nd Lt.*
King, Martin, *O.C. to 2nd Lt.*
Kulda, Richard J., *A.C. to 2nd Lt.*
Looker, Edward C., Jr., *A.C. to Lt.*

U.S.N.

1907 Land, Emory S., *Rear Adm. to Vice Adm.*
1921 Easton, Glenn H., *Lt. Comdr. to Comdr.*
Rawlings, Norborne L., *Lt. Comdr. to Capt.*
1922 Aaron, H. Richard, *Lt. to Lt. Comdr.*
Beatty, Frank E., *Capt. to Rear Adm.*
Paul, Frederick C., *M.M.1c. to C.M.M.*
1924 McFarland, George C., *Lt. to Lt. Comdr.*
1925 Arnold, William F., *Lt. Comdr. to Comdr.*
Chapline, George F., *Comdr. to Capt.*
1926 Esling, Thomas A., *Comdr. to Capt.*
Roberts, Ralph H., *Lt. Comdr. to Capt.*
1927 Johnson, Ralph B., *Lt. Comdr. to Comdr.*
1928 Armstrong, Cole A., *Lt. to Lt. Comdr.*
Josephs, Arthur C., *Lt. to Lt. Comdr.*
McAfee, John K., *Lt. to Lt. Comdr.*
Norcross, Nathan C., *Lt. Comdr. to Comdr.*
1929 Blake, Herford T., *Lt. (j.g.) to Lt.*
1930 Forsberg, Mary E., *Lt. (j.g.) to Lt.*
Green, Oliver G., *Lt. to Lt. Comdr.*
Torchio, Philip, Jr., *Lt. (j.g.) to Lt.*
1931 Bennett, Claude H., Jr., *Lt. Comdr. to Comdr.*
Graesser, Walter M., *Lt. to Lt. Comdr.*
Hodges, Winthrop D., *Lt. to Lt. Comdr.*
Humphreys, George C., *Lt. to Lt. Comdr.*

1931 Morse, Louis S., Jr., *Lt. (j.g.) to Lt.*
 1932 Bond, Leslie C., *Pvt., U.S.A. to Mo.M.M.Ic.*
 Brady, George J., *Lt. (j.g.) to Lt. Comdr.*
 Burr, Leland M., Jr., *Lt. to Lt. Comdr.*
 Follansbee, Robert B., *Lt. (j.g.) to Lt.*
 Ghiglione, Angelo F., *Lt. to Lt. Comdr.*
 1933 Kroger, Henry B., *W.O. to Ens.*
 Pixton, John E., *Lt. to Capt.*
 1934 Cunha, George M., *Lt. to Lt. Comdr.*
 Hayes, Miles Van V., *Lt. to Lt. Comdr.*
 Knox, David D., *Lt. to Lt. Comdr.*
 Walker, Philip B., Jr., *Lt. (j.g.) to Lt.*
 1935 Brown, Oscar M., Jr., *Lt. to Lt. Comdr.*
 Helwith, Edward E., *A.S. to R.T.Sc.*
 Liehr, Herman W., *Lt. (j.g.) to Lt.*
 Morss, Theodore G., *A.O.M.Sc. to A.O.M.Ic.*
 1936 Gordon, Bernard B., *Ens. to Lt. (j.g.)*
 Holtzworth, Ernest C., *Lt. to Comdr.*
 Prescott, John G. F., *Lt. to Comdr.*
 Thompson, Donald C., *Ens. to Lt. (j.g.)*
 Woodcock, Robert B., *Ens. to Lt. Comdr.*
 1937 Blue, E. Morse, *Lt. to Lt. Comdr.*
 Hanlon, Daniel J., Jr., *Ens. to Lt. (j.g.)*
 Mank, Sidney, *Lt. (j.g.) to Lt.*
 Westgate, Reland B., *Lt. to Lt. Comdr.*
 Whitaker, David S., *Ens. to Lt. (j.g.)*
 1938 Barnaby, Donald R. E., *Ens. to Lt. (j.g.)*
 Schorsch, Allan E., *Lt. (j.g.) to Lt.*
 Summerfield, John R., *Ens. to Lt. (j.g.)*
 1939 Bennett, Bradley F., *Lt. to Lt. Comdr.*
 Fouhy, James F., Jr., *Ens. to Lt. (j.g.)*
 Greely, James W., *Lt. to Lt. Comdr.*
 Smith, Richmond W., *Ens. to Lt. (j.g.)*
 1940 Church, Robert T., *Ens. to Lt. (j.g.)*

DiVenuti, Lawrence E., *Ens. to Lt.*
 Fifield, James E., *Mid. to Ens.*
 Heskett, David M., *Ens. to Lt.*
 Kloek, John C., *Ens. to Lt. (j.g.)*
 Mahoney, Joseph L., *Ens. to Lt. (j.g.)*
 Robbins, Arthur W., *Ens. to Lt. (j.g.)*
 Snyder, R. Robert, *R.T.Sc. to S.Ic.*
 Thompson, Ralph N., *Lt. (j.g.) to Lt.*
 Ward, Alfred G., *Lt. Comdr. to Comdr.*
 White, William R., *Lt. (j.g.) to Lt.*
 Wight, M. Arnold, Jr., *Ens. to Lt. (j.g.)*
 1941 Borrebach, Edwin J., *P.O.Sc. to S.A.D.Ic.*
 Guernsey, Glen A., *Ens. to Lt.*
 McClure, Harlan E., *Lt. (j.g.) to Lt.*
 Magnusson, Philip C., *Ens. to Lt. (j.g.)*
 Schwing, Robert M., *Pvt., U.S.A. to Ens.*
 Stanton, Emmanuel J., *Ens. to Lt.*
 1942 Winchell, Guilbert S., *Ens. to Lt.*
 Batson, Robert A., *Ens. to Lt. (j.g.)*
 Brown, William W., *Lt. Comdr. to Comdr.*
 Connolly, Thomas F., *Lt. Comdr. to Comdr.*
 Fortune, William C., *Lt. Comdr. to Comdr.*
 Franklin, William R., *Lt. Comdr. to Comdr.*
 Minevitch, Liss, *Ens. to Lt. (j.g.)*
 1943 Atlas, Sid F., *Ens. to Lt. (j.g.)*
 Bowers, Dexter K., *Ens. to Lt. (j.g.)*
 Boyd, Walter A., Jr., *Ens. to Lt. (j.g.)*
 Brindis, Bernard, *Ens. to Lt. (j.g.)*
 Brown, Cyril H., *Ens. to Lt. (j.g.)*
 Bryant, Carleton F., *Ens. to Lt. (j.g.)*
 Cahill, Edward J., *Ens. to Lt. (j.g.)*
 Ernst, Edward E., *S.Ic. to A.R.T.Sc.*
 Foster, Warren E., *Ens. to Lt. (j.g.)*
 Gershenow, Harold J., *Ens. to Lt. (j.g.)*

Goodhue, James W., *Ens. to Lt. (j.g.)*
 Hallager, Sigurd, Jr., *A.C. to Ens.*
 Henning, Richard E., *Ens. to Lt. (j.g.)*
 Holt, F. Sheppard, *Ens. to Lt. (j.g.)*
 Hydeman, Richard R., *S.Ic. to Ens.*
 Jouannet, Richard F., *Ens. to Lt. (j.g.)*
 Prival, Elliott C., *Ens. to Lt. (j.g.)*
 Rosenthal, Morris H., *Ens. to Lt. (j.g.)*
 Shuttack, John T., *Ens. to Lt. (j.g.)*
 Speicher, Paul E., Jr., *Ens. to Lt. (j.g.)*
 Stevens, Donald R., Jr., *Ens. to Lt. (j.g.)*
 Townsend, Robert L., *Lt. Comdr. to Comdr.*
 Wadge, Gordon F., *Ens. to Lt. (j.g.)*
 2-44 Cole, Everitt J., Jr., *A.S. to Ens.*
 Egbert, John E., *Mid. to Ens.*
 Flowers, Langdon S., *Mid. to Ens.*
 Griffith, Frederick M., Jr., *A.S. to Ens.*

U.S.C.G.

1926 Perry, Stewart S., *P.O. to C.R.T.*
 1936 Waram, J. Thomas C., *Ens. to Lt. (j.g.)*
 1940 Benenson, Lawrence A., *Ens. to Lt. (j.g.)*
 Walker, Phelps A., *Ens. to Lt. (j.g.)*
 1941 Chaffee, Hubert R., *Lt. Comdr. to Comdr.*

U.S.M.C.

1933 Sampas, Michael, *Capt. to Lt. Col.*
 1941 Van Riper, John, *Lt. to Capt.*
 1942 Dennen, William H., *Lt. to Capt.*
 Lawrence, Charles H., *2nd Lt. to 1st Lt.*
 1943 Richards, Raymond R., *2nd Lt. to 1st Lt.*
 **Willcox, Julian, *Lt. to Capt.*

CANADA

Army

1936 Blackburn, Gerald A., *Capt. to Maj.*

CHINA

Army

1926 Chu, Shih M., *Maj. Gen. to Lt. Gen.*

RANKS NOT PREVIOUSLY PUBLISHED

U.S.A.

1942 Baker, Albert E., Jr., *Capt.*
 Barnett, James M., Jr., *S.Sgt.*
 2-44 Berinsky, Stanley, *Lt.*

U.S.N.

1926 Wardner, George W., *F.C.Ic.*
 2-44 Bush, Thomas A., Jr., *Ens.*
 Margileth, Andrew M., *A.S.*

U.S.M.C.

2-44 Schlegel, William H., *Pvt.*

CASUALTIES

1908 *Fretz, Paul H., *Comdr., U.S.N.*
 1916 *Hyde, James F. C., *Brig. Gen., U.S.A.*
 *Webster, Walter W., *Capt., U.S.N.*
 1922 *Gallagher, E. Francis, *Capt., U.S.A.*
 1931 *Allen, William I., *Col., U.S.A.*
 1933 *Case, Charles V., Jr., *Lt., U.S.A. — Italy.*
 1934 **Becker, Robert C., *1st Lt., U.S.A. — France.*
 *Steele, Justus U., *Lt. Comdr., U.S.N.*
 1935 *Garner, Howard R., *Lt., U.S.N.*
 *Pagliuca, Salvatore, *Maj., U.S.A.*
 1936 *Black, Francis L., *Comdr., U.S.N.*
 1938 *Spengler, Daniel S., *Capt., U.S.A. — Normandy.*
 1939 *Merrill, Leonard A., Jr., *Lt., U.S.A. (Previously reported Missing in Action at Anzio Beachhead.)*
 1940 **Russonello, Louis V., *Ens., U.S.N.*
 1941 †Davis, Kenneth, *Lt., U.S.A. — Germany.*
 *Wade, Howard W., *Lt., U.S.N.*
 1942 *Downing, James F., *Capt., U.S.A.*
 †Larkin, James J., *Capt., U.S.A. — Germany. (Previously reported Missing in Action in Italy.)*
 *Young, James H., Jr., *Lt., U.S.A.*
 2-44 †Connett, Harold, Jr., *Ens., U.S.N. — Southwest Pacific.*
 †Parnelee, James L., *2nd Lt., U.S.M.C. — New Britain.*

★ Killed in Action

† Missing in Action

‡ Prisoner of War

* Died in Service

** Wounded

Scientific Thinking

First Lieutenant William W. Kellogg '42, a graduate in Chemical Engineering and a wearer of the Distinguished Service Cross, now a paratrooper serving with the Fifth Army in Italy, was crossing a stream, hand over hand on a cable. He looked up to see how far he had to go and he saw on the far bank two German soldiers peering at him. Lieutenant Kellogg dangled and thought, first that his arms were becoming tired and then about his pistol, which he could not reach without falling into the stream, 30 feet below.

"You're surrounded!" he shouted in German, though his thoughts were of the opposite situation. "If you fire a shot, you will be killed in a minute. Americans are all around you. I'll give you four minutes to surrender."

The two Germans came to the edge of the bank, unarmed. They thought it would be safer to surrender — and did.

— From an Associated Press Dispatch

ALUMNI AND OFFICERS IN THE NEWS

Titles

¶ By HARRY B. PULSIFER '03, *Inspection of Metals*, written under the authorization of the American Society for Metals.

¶ By JOHN MILLS '09, *Electronics: Today and Tomorrow*, D. Van Nostrand Company, Inc.

¶ By CHARLES P. SHILLABER '09, *Photomicrography*, John Wiley and Sons, Inc.

¶ By HAROLD F. DODGE '16, in collaboration with Harry G. Romig, *Sampling Inspection Tables*, John Wiley and Sons, Inc.

¶ By H. E. LOBDELL '17, a monograph, "The De La Rue Georgians of South Africa," the Collectors Club, Inc.

¶ By CLIFFORD FRONDEL '39, with Charles Palache and Harry Berman, a revision and enlargement of James D. Dana's *System of Mineralogy*, volume I, John Wiley and Sons, Inc.

¶ By THEODORE NAIDISH '40, *Watch Out for Willie Carter*, Scribners.

¶ By JAMES M. AUSTIN '41 and BERNHARD HAURWITZ, staff, *Climatology*, McGraw-Hill.

¶ By HERVEY W. SHIMER, staff, and ROBERT R. SCHROCK, staff, *Index Fossils of North America*, John Wiley and Sons, Inc.

Milestones

¶ For HAROLD W. JONES '98, whose portrait, painted by Rolfe Stoll, was presented to the library by the Friends of the Army Medical Library in Washington, D. C., "in recognition of Colonel Jones' contribution to the advancement of medicine and his interest in extending the library's service to the field of microfilm copying."

¶ For FRANK B. JEWETT '03, in whose honor at retirement the American Telephone and Telegraph Company has established a trust fund to finance five annual postdoctorate fellowships in physical science.

¶ For HARDY CROSS '08, to whom the Society for the Promotion of Engineering Education has awarded the 17th Lamme Medal for achievement in engineering education — specifically "for his development of revolutionary methods of analysis in structural engineering; for his application of these methods to the rigorous training of civil engineers; for his insistence on the great responsibilities of the individual teacher and his scorn of the superficial in education . . ."

¶ For HUGO F. KUEHNE '08, advanced to fellowship in the American Institute of Architects, "in recognition of his

broad civic interests and his long public service . . . his unassuming devotion to the profession of architecture . . . his establishment of the department of architecture at the University of Texas, and for his subsequent aid and encouragement to architectural education."

¶ For BRADLEY DEWEY '09, selected by the American section of the Society of Chemical Industry to receive the Chemical Industry Medal for 1944 "for his work in colloid chemistry, especially as pertaining to rubber latex, and his accomplishment in administering the synthetic rubber program during the critical war period."

¶ For ERNEST A. GRUNSFELD, JR., '18, advanced to fellowship in the American Institute of Architects "for his distinguished talent in design, the uniform high standard of his executed work, his feeling for the best in modern architecture exemplifying not only originality but also good taste, and his rigid adherence to the high ideals of the institute."

¶ For KENNETH S. M. DAVIDSON '19, who received in June an honorary degree of doctor of science from Stevens Institute of Technology.

¶ For LYMAN P. WHITTEN '20, in August, assigned to command of the Army Air Forces Service Command in the Mediterranean theater of operations.

¶ For EARNSHAW COOK '22, JOHN A. FELLOWS '32, and RICHARD A. FLINN, JR., '37, who, at the annual dinner of the society at the Statler Hotel in Cleveland on October 19, received jointly the Henry Marion Howe Medal of the American Society for Metals for "the best paper to appear in the *Transactions* of the society over a stated period of time," their paper, which appeared in the issue of March, 1943, being "A Quantitative Study of Austenite Transformation."

¶ For VLADIMIR HAENSEL '37, who at a banquet in May at the Palmer House in Chicago received the 1944 Distinguished Service Award of the Chicago Junior Association of Commerce for developing a process making possible volume production of triptane, a key component of high-octane aviation gasoline.

¶ For PAUL E. SANDORFF '39, who wrote, in collaboration with R. B. Bland, a paper on "The Dynamic Properties of Flash-Welded Tubing" chosen as winner of the 1944 Industrial Prize offered by the Resistance Welder Manufacturers Association.

¶ For REE V. LE BEAU, staff, in June elected a member of the National Academy of Sciences.

Discourse

¶ By HAROLD M. CHASE '94, who read a paper on "The Treatment of Cotton Roving and Yarns with Bonding Agents," before the annual meeting of the American Association of Textile Chemists and Colorists in Atlantic City on October 14.

¶ By CHARLES E. LOCKE '96, who was toastmaster, at the dinner held at the Boston Yacht Club on September 28 during the fall meeting of the American Institute of Mining and Metallurgical Engineers.

¶ By CHARLES B. BREED '97, who spoke on "Land and Air Transport after the War" on student night, September 27, before a joint meeting of the Boston Society of Civil Engineers and its highway section and the north-eastern section of the American Society of Civil Engineers, held at North-eastern University.

¶ By ARTHUR A. BLANCHARD '98, who spoke on the metal carbonyls before sections of the American Chemical Society at Poughkeepsie on October 9, at Schenectady on the 10th, at Binghamton, N.Y., on the 11th, and at Syracuse on the 12th.

¶ By WILLARD F. ROCKWELL '08, who, in an address in New York in June, outlined the "Rockwell plan," his own scheme for accumulation and use of reserves to tide workers over the reconversion period.

¶ By DEAN PEABODY, JR., '10, who discovered the "Application of Data to Design," and WALTER C. VOSS '32, who dealt with the "Construction of Model and Conduct of Tests," two aspects of "Concentrated Loads on Thin Shelled Spherical Domes," the general subject treated at the October 11 meeting of the designers' section of the Boston Society of Engineers.

¶ By PAUL M. TYLER '12, who spoke on mineral resources of the Southeast at the annual Bureau of Mines meeting of the southeast section of the American Institute of Mining and Metallurgical Engineers, held on June 16 at the Southeastern Experimental Station in Tuscaloosa, Ala.

¶ By GEORGE A. RICHTER '13, who discussed the "Depolymerization of Cellulose; Its Significance in Industry," before the Rochester section of the American Chemical Society on May 15.

¶ By C. RICHARD SODERBERG '20, who spoke on "Gas Turbines and Some

Applications" before the Boston section of the American Society of Mechanical Engineers at Northeastern University on October 19.

¶ By ALAN E. CAMERON '26, who addressed the 57th annual meeting of the Mining Society of Nova Scotia on "The Future of the Mining Industry in Nova Scotia," at the Cornwallis Inn, Kentville, N. S., on July 6.

Appointments

¶ For CHARLES-EDWARD A. WINSLOW '98, among those chosen as consultants to the Surgeon General of the Army in matters pertaining to preventive medicine and public health.

¶ For KARL T. COMPTON, staff, FRANK B. JEWETT '03, and JEROME C. HUNSAKER '12 as civilian scientists with JULIUS A. FURER '05 and EDWARD L. COCHRANE '20 from the Navy Department, all to be members of a 12-man Committee on Postwar Research, a permanent institution to provide new ideas in warfare.

¶ For CLARK S. ROBINSON '09, elected president of the Technology chapter of the Army Ordnance Association.

¶ For MILLARD W. MERRILL '13, elected president of the Purchasing Agents Association of New York.

¶ For EGBERT C. HADLEY '14, made chairman of the board of trustees of Middlebury College in Vermont.

¶ For NORMAN D. MACLEOD '14, nominated Republican candidate for governor of Rhode Island.

¶ For LAURISTON E. KNOWLTON '16, elected chairman of the technical section of the American Gas Association.

¶ For THEODORE P. WRIGHT '18, named administrator of civil aeronautics.

¶ For ALEJANDRO MELCHOR '41, appointed undersecretary of national defense in the Philippine Islands.

¶ For WYMAN P. FISKE, staff, elected secretary of the National Association of Cost Accountants, and RONALD H. ROBBETT, staff, elected president of the Boston chapter of the same association.

Contributions

¶ By WALTER R. INGALLS '86, "What for Copper After the War?" in *Mining and Metallurgy* for September.

¶ By LUTHER R. NASH '94, "A Factual Basis for Utility Depreciation Accounting" in the *Public Utilities Fortnightly* for August 3.

¶ By JOHN BOYLE '01, "Patents or Premiums" in the *Journal of the Patent Office Society* for July.

¶ By JULIUS A. FURER '05, "Science Works with the Armed Forces" in the *Scientific Monthly* for August.

¶ By FAY W. LIBBEY '06, "Don't You Believe It!" in the *Mining Journal* for June 15.

¶ By THOMAS C. DESMOND '09, "Cut Your Dental Bill in Half" in the *Woman* for October.

¶ By JOHN L. BRAY '12, "Accelerated Programs in Engineering Schools — Their Good and Bad Features" in *Mining and Metallurgy* for September.

¶ By EDWARD L. COCHRANE '20, "From Rendova to Normandy — Biography of the LST" in *Shipmate* for July.

¶ By DUGALD C. JACKSON '21, "Our Need of Further Research" in the *Journal of Engineering Education* for March.

¶ By GEORGE D. RAMSAY '22, "The Fontana Steel Plant and Its Raw Materials Supply" in *Mining and Metallurgy* for September.

¶ By ROBERT S. HARRIS '28 and ERNEST E. LOCKHART '34 with Marie Clark, "Nutritional Value of Bread Containing Soya Flour and Milk Solids" in the *Archives of Biochemistry* for May.

¶ By ANTHONY STANDEN '29, "Japanese Beetle" in *Life* for July 17.

¶ By HENRY D. WILDE '29, "Petroleum as a Source of Chemicals" in *Mining and Metallurgy* for July.

¶ By RONALD A. WHITE '33, "Lightning Assembly" in the Lockheed publication *Aircraftsman* for May.

DEATHS

* Mentioned in class notes.

¶ HENRY P. COGSWELL '73, June 28.

¶ HORACE B. SHEPARD '75, September 7*.

¶ CHARLES A. SIMPSON '75, June 22.

¶ CHARLES A. CLARKE '77, April 27*.

¶ HENRY G. FROST '85, date unknown.

¶ CHARLES S. ROBINSON '85, August 1.

¶ ROLAND N. CUTTER '89, January 28*.

¶ LYMAN A. FORD '89, October 17, 1943*.

¶ HENRY M. WAITE '90, September 1.

¶ HORACE H. ENSWORTH '91, January 13*.

¶ WALTER P. HENDERSON '91, July 31*.

¶ WILLIAM H. TUCKER '91, in 1942*.

¶ THADDEUS S. WELCH '91, February 29.

¶ CHARLES F. PARK '92, September 26. (See "The Institute Gazette.")

¶ FREDERIC H. FAY '93, June 5*.

¶ J. RAMSEY SPEER '93, October 1.

¶ WILLARD D. BROWN '94, July 26.

¶ MASON S. CHACE '94, August 9.

¶ J. HOWLAND GARDNER '94, July 7.

¶ ALLAN P. BROWN '95, May 11*.

¶ ALFRED T. TAYLOR '95, March 28*.

¶ CHARLES J. BARNES '96, June 3*.

¶ HENRY GARDNER '96, July 2*.

¶ HOWARD E. SMITH '96, June 27*.

¶ JOHN T. ALDEN '97, September 28.

¶ NATHAN HAYWARD '97, June 21*.

¶ JAMES C. SAWYER '97, August 8*.

¶ MARY E. WYNNE '97, September 16.

¶ ALLEN H. COX '98, July 5.

¶ JOHN W. FLEET '98, March 7.

¶ JOHN N. GODDARD '98, August 26.

¶ RAYMOND S. WILLIS '98, June 30.

¶ W. MALCOLM CORSE '99, June 3*.

¶ EDWIN F. SAMUELS '99, June 3*.

¶ MORTON C. MOTT-SMITH '00, June 9*.

¶ GEORGE T. HYDE '01, June 23*.

¶ JOHN J. LEE '01, April 30, 1943.

¶ LESLIE E. MERRILL '01, October 29*.

¶ ALBERT F. SULZER '01, August 6*.

¶ WILLIAM M. VERMILYE '01, August 29*.

¶ CHARLES D. BREWER '02, June 3*.

¶ CHARLES B. HOLLIS '02, March 17*.

¶ BAYARD W. MENDENHALL '02, September 16*.

¶ EVERETT L. UPHAM '02, October 7.

¶ SAMUEL USHER, 2d, '02, July 7*.

¶ DANIEL W. FIELD '03, April 30.

¶ HERBERT A. G. LOCKE '03, August 6*.

¶ LUCIUS B. MCKELVEY '03, July 24.

¶ WALTER D. REID '03, March.

¶ LEWIS C. CLARKE '04, November 18, 1943*.

¶ SELSKAR M. GUNN '04, August 2*.

¶ ROBERT A. HUBBARD '04, October 14, 1943*.

¶ CLARENCE A. NEAL '04, June 29, 1943*.

¶ RUFUS C. REED '04, August 27*.

¶ EDWARD B. RICH '04, May 9, 1943*.

¶ GEORGE W. SANBORN '04, August 2*.

¶ ROSS R. SCHULTE '04, December 24, 1943*.

¶ WALTER S. BROWN '05, July 3*.

¶ GEORGE B. JONES '05, July 11*.

¶ WILLIAM F. WALKER '06, October 9, 1943.

¶ QUINCY P. EMERY '07, July 20*.

¶ CHARLES B. FLETCHER '09, May 28*.

¶ HENRY L. SHERMAN '09, in 1943*.

¶ RAYMOND L. JONES '10, April 5*.

¶ DOUGLAS C. MCMURTRIE '10, September 29.

¶ H. CHESTER DAMON '12, September 1.

¶ ARTHUR W. FRANK '12, August 30*.

¶ HENRY D. MACDONALD '12, May 11*.

¶ WALTER V. ROHLFFS '12, January 6, 1943*.

¶ ALFRED E. HANSON '14, July 30*.

¶ SAMUEL M. ELLSWORTH '16, August 13*.

¶ PAUL P. WRIGLEY '18, May 19.

¶ JOHN R. ROWE '19, December 12, 1943*.

¶ EVERETT B. FRENCH '20, May 19*.

¶ EDWARD V. CARROLL '22, June 22.

¶ E. FRANCIS GALLAGHER '22, June 22*.

¶ CLYDE P. MATTESON '23, June 2*.

¶ T. EDWARD MOODIE '24, July 21*.

¶ FRANK O. POTTER '27, September 21, 1943*.

¶ WALTER C. SCHULER '27, date unknown*.

¶ GWILYM S. BRAUN '28, March 14.

¶ CARLETON W. SCOTT '28, May 25.

¶ LUTTRELL L. RICE '34, in 1942.

¶ DANIEL S. SPENGLER '38, July 8*.

¶ LEONARD A. MERRILL, JR., '39, January 26*.

¶ ROGER W. BUTLER '41, November 2, 1942.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

M.I.T. Association of Buffalo

The last meeting of the season was held at the Buffalo Trap and Field Club on March 23. The nominating committee, composed of Marvyn Gorham '93, Harold Mitchell '12, and Whitworth Ferguson '22, presented its recommendations, and the following were nominated and elected officers for the ensuing year: President, Thomas H. Speller '29; Vice-president, Benjamin C. Buerk '30; Secretary-Treasurer, Walter H. Sherry '37.

The Buffalo Arms Corporation opened its doors for the first time to a group of civilian visitors, and after introductory talks by Rowland J. Black, factory manager, and Vreelandt B. Lyman, director of engineering, the Technology group of 37 was split into parties of four, provided with escorts, and proceeded through the plant to see the intricacies of the manufacture of machine guns. Everybody found several points of extreme interest, including the machining of the parts, assembly, sighting, and actual firing of the guns. One appreciates the energy in a 50-caliber bullet after seeing the recoil of the gun; and the air-conditioned gauge room with its precision instruments was well worth seeing, as was the high-frequency induction heating.

All were surprised at the intensity with which the employees worked and at the scarcity of employees not actively engaged in production. It developed in a closing discussion with Messrs. Black and Rowland that all employees were on a group bonus plan which really worked. Even the maintenance department earned a bonus as the ratio of its employees to the number of productive employees diminished. The employees had their own union and a command fund from which to contribute, in amounts determined by themselves, to the various drives and appeals. The plant was really producing for the war effort and was an inspiration to all who saw it. The Club deemed itself fortunate in being privileged to see this factory at first hand, as the lateness of the hour at which we disbanded testified. — WALTER H. SHERRY '37, Secretary, Ferguson Electric Construction Company, 204 Oak Street, Buffalo 3, N.Y.

Technology Club of Hartford

The Club held its annual meeting and ladies' night on June 8 at the City Club of Hartford. The ladies were well represented, there being 10 among the 30 persons present. The meeting was presided over by Frederick O. Almquist '23. The report of the secretary-treasurer was accepted as read. A communication from the New Haven club, inviting our members to its annual meeting, was read. President Almquist then called on George Mylchreest '10, chairman of the postwar employment committee, for a progress report. He reported that

Francis E. Stern '16, Roger W. Davis '12, Malcolm G. Wight '06, and Stanley H. Osborn '15 had already agreed to serve on the committee. It was voted that the annual outing be held on the last Saturday in June as usual, in spite of transportation difficulties.

The report of the nominating committee, composed of J. Henry Giles '29, chairman, Roger Davis '12, and Charles Chatfield '14, was the next item of business. The officers nominated and unanimously elected for 1944-1945 were as follows: President, Horace B. Tuttle '21; Vice-presidents — in charge of hospitality, Norman J. Vile '16, — of programs, Charles E. Mongan '23, — of publicity, J. P. F. Pilkington '27, — of attendance, Myron F. Burr '32; Secretary-Treasurer, Louis J. Proulx, Jr., '36; Assistant Secretary-Treasurer, John A. Swift '27; Governor for one year (continuing), F. P. Ward '26; Governor for two years, William S. Wise '23; Representative to Alumni Council, Malcolm G. Wight '06; Class Decade Representatives, prior to 1900, Edwin C. Alden '95; 1901 to 1910, Everett O. Hiller '04; 1911 to 1920, Harold W. McIntosh '19; 1921 to 1930, Charles A. Morss, Jr., '21; 1931 to 1940, Richard C. Molloy '33; 1941 to date, unfilled at present.

Following the business meeting, the group heard a very interesting talk by Fred Maples, Army chaplain at Bradley Field. Major Maples outlined the work of the Corps of Chaplains and described some of his experiences as an Army chaplain. His talk was especially well received by those among the group having relatives in the armed forces.

June 24, the traditional date for the annual outing, brought rain this year, although the weatherman has seldom failed us in the past. Fourteen hardy fellows nevertheless showed up at Goodwin Park, Hartford, where a picnic lunch was served under the pavilion. Afterward the rain let up enough for a rather wet game of softball. Thus a good time was had by all, and the chain of annual outings remains unbroken. — LOUIS J. PROULX, JR., '36, Secretary, 31 Wells Road, West Hartford, Conn. JOHN A. SWIFT, '27, Assistant Secretary, Billings and Spencer Company, Corner Park and Laurel Streets, Hartford, Conn.

Technology Club of Southern California

On the 13th of June 68 members assembled at the University Club of Los Angeles for a very good dinner and a talk by R. B. Stringfield '15 on "Materials for Tomorrow." Anyone in search of a speaker on this subject would be hard put to find one more completely in possession of facts and matters of interest connected with materials than Mr. Stringfield, who is a consulting engineer and has lately been chief consultant to Vultee Aircraft Corporation. Thanks to him, the meeting was a great success. Election of officers for this year resulted in the following choices:

President, Ford W. Sammis '28; Secretary-Treasurer, John B. Pitkin '37. — JOHN B. PITKIN '37, Secretary, Route 1, Box 386P, La Canada, Calif.

M.I.T. Club of South Florida

Edward Mandell '21 at the violin and John Sproul 10-44 at the piano accompanied the rest of the boys in the singing of the new song, "Sons of M.I.T.," at the social gathering on June 8 at the home of President Mandell. The club paper and problems of postwar employment were among the topics of discussion. — A barbecue was held on July 6 at the home of Fred Zurwelle '20.

On June 22 Thayer and Shainin drove to Lake Worth, Fla., to visit Arthur Westcott '23, and later continued north to West Palm Beach, where they called on Louis Ehrhart Reber '85. The primary purpose of these visits was to encourage the establishment of local groups of Technology Alumni in regions where too few Alumni were living to warrant the establishment of a full-scale regional alumni club. They proposed that from time to time the men get together at the home of one of their group to cement old friendships and make new ones. Despite the great physical handicaps imposed on him by acute arthritis, which resulted from bullet wounds in World War I, Westcott built an attractive home at Lake Worth, where he has lived for the last five years with his family. He enthusiastically endorsed this plan for the local organization of Alumni and will do what he can to round up other Tech men in the area. Although 86 years old, Dean Reber greeted his callers with a hearty handshake and a broad smile and carried on a spirited conversation. After his graduate work at the Institute, Mr. Reber returned to his undergraduate alma mater, Penn State, where for 12 years he was dean of engineering; later he became founder and president of the National University Extension Association. We left with him the addresses of other Alumni in the area. — CLARENCE P. THAYER '23, Secretary, 4212 Northwest 6th Avenue, Miami, Fla.

New Haven County Technology Club

The annual meeting and outing was held on June 17 at the Pine Orchard Club, Branford, Conn. In the afternoon 25 members took advantage of the golf, boating, and swimming available. A fine dinner was served at 7:30. The meeting was then called to order by President Williams, who asked for reports from the secretary and the treasurer. The Secretary gave the results of the election, in which the following officers were unanimously chosen: Albert I. Blank '37, President; Natale Gada '26, Vice-president; Lawrence B. Grew '27, Secretary; Floyd W. Buck, '29, Treasurer; and Charles A. Williams '21, Governor at large. After making his own report,

President Williams turned the gavel over to newly elected President Blank, who gave an interesting talk and asked for suggestions from the members as to the types of meeting they would prefer. A rising vote of thanks was given to Roy Parsell '14 and W. D. Pinkham '22 for making arrangements for the dinner and outing, and at 10:45 the meeting adjourned. — LAWRENCE B. GREW '27, *Secretary*, Southern New England Telephone Company, New Haven, Conn.

Technology Club of New York

The following Alumni have been admitted to membership: Claude E. Patch '02, industrial engineer, Boston, Mass.; Frank E. McKone '17, engineer, Breeze Corporations, Newark, N.J.; Walter A. Sherbrooke '20, engineer, Brooklyn, N.Y.; Paul N. Anderson '21, President, Dahlstrom Metallic Door Company, Jamestown, N.Y.; Philip T. Coffin '21, Aluminum Company of America, New York City; William F. Kennedy '21, sales engineer, New York City; Ferris B. Briggs '22, the Fen-Mar Company, Inc., New York City; Dale D. Spoor '22, sales manager, Air Reduction Sales Company, New York City; Earle A. Griswold '23, Vice-president, Tampax, Inc., Palmer, Mass.; Louis H. Skidmore '23, architect, New York City; William W. Quarles '24, district manager, McGraw-Hill Publishing Company, New York City; C. Wesley Meytrott '27, Consolidated Edison Company of New York, New York City; Roger B. White '34, engineer, New York City; H. Coolidge Adams '37, Bermuda Government, New York City; Joseph A. McGinniss '40, architect, New York City; James K. Pickard '41, electrical engineer, Post-office Box 397, Church Street Annex, New York City; George R. Spies, Jr., '42, Air Reduction Company, Jersey City, N.J.; Egon A. von Reutter '44, application engineer, New York City.

The 6th annual golf outing was held at the Scarsdale Golf Club. Larry Davis '22, the present champ, was a repeater with a performance that left all competition far in the rear. — Between 75 and 100 fellows came out for the dinner, with Jack Teeter and Frank Gage again leading the singing department. — It's always a pleasure to have Dean Lobdell drop in on us for lunch as he did this summer. — The Class of '17 has made the third Wednesday of each month their luncheon date at the Club. — WILLIAM D. NEUBERG '17, *Secretary*, 24 East 39th Street, New York, N.Y. WILLIAM L. KEPLINGER, JR., '24, Publicity Committee, care of Johns-Manville Corporation, 22 East 40th Street, New York, N.Y.

CLASS NOTES

1875

It is with regret that we record the death on September 7 of Horace Blanchard Shepard, founder and head of one of the most prominent wholesale lumber businesses in the Northeast and for 60 years a resident of Brookline. The Boston *Globe* of September 8 says of Mr. Shepard: "His career began with the founding of the Blacker and Shepard Company of Boston, but he sold

out his interest and became associated with the Shepard and Morse Lumber Company, of which he had been president for the past 35 years. He founded the Shepard Steamship Company in 1928 and was its president until his death. He was an officer and last surviving charter member of the Massachusetts Lumber Mutual Insurance Company. He was also the last surviving charter member of the National American Wholesale Lumber Association and a past president of the Massachusetts Wholesale Lumber Dealers' Association. He was president of the Shepard Lumber Company of Burlington, Vt., a member of the Corinthian Yacht Club of Marblehead, the Boston City Club, and a life member of the ALA."

1877

Charles Atherton Clarke was born in Woburn, Mass., on September 13, 1854. He died at Watertown, Mass., on April 27. He was the son of Henry Ware Clarke and Mary Caroline Whiting. His parents moved to Worcester, Mass., when he was three years old, and to Watertown when he was ten years old. He attended the public schools of Watertown and was graduated from the high school in 1873. He then went to Technology. At his death he had been class president for more than 50 years.

After leaving the Institute, he entered the firm of Hill, Clarke and Company, machinery merchants of Boston, of which his father was founder and president. At his father's death, he became president of the firm and held that position until he gave up the business. In 1907 he began manufacturing the Universal Boring Machine and served as president of the Universal Boring Machine Company until 1941, when he became its vice-president.

Clarke was a member of the American Society of Mechanical Engineers, of the Engineering Societies of Boston, and the Boston Chamber of Commerce. He was a Unitarian and a Mason, a member of the Winslow Lewis Masonic Lodge. The Rev. Ernest B. Meridith, who officiated at the funeral services at his home, spoke of his kindly nature and his ardent desire to lend a helping hand in either friendship or distress. Beeching attended the funeral as our class representative.

On January 6, 1881, Clarke married Georgiana Whiting of Charlestown, and lived much of his married life in Newton, Mass. After his wife's death he made his home with his daughter at Watertown. Surviving him are a daughter, Carolyn Whiting Goodsell, whose husband, Alson H. Goodsell, is treasurer of the Universal Boring Machine Company, and a daughter, Margaret Collamore Hassett, who attended the Institute in 1929 and married Waman S. Hassett '31, now a major in the Quartermaster Corps, who was also associated with the Universal Boring Machine Company until he was called to the Army in 1940. There are four grandsons, three of whom are now in the Navy, and three granddaughters.

Clarke's chief hobby was fishing at his camp in Maine. He was a great reader of travel books and autobiographies and, until the outbreak of the war, spent some time every winter cruising in the Caribbean. His classmates were ever devoted and fondly attached to him. On last February 26, he sat at the head of the table when

our Class held its 67th annual reunion. — GEORGE W. KITTREDGE, *Secretary*, 592 North Broadway, Yonkers 3, N.Y.

1887

Our 57th annual reunion and dinner were held for the third consecutive year at the Plymouth Rock Hotel at Plymouth, Mass., and, like the predecessors, proved most enjoyable. June 17 and 18 were the dates selected, and the weather was all that could be desired. Those in attendance were Brett, Cole, Kendall, Cameron, Sever, Carter, Tripp, Squash Cushing, and Very. They were accompanied by Mrs. Cameron, Mrs. Carter, and Mrs. Very, also by Mrs. Palmer, a sister of Winthrop Cole, and Miss Kendall, a niece of our classmate of that name.

On the 17th we were entertained by the Bretts at their delightful country manor, "Crooked Lane Farm," where a delicious lobster dinner was served by Mrs. Brett, ably assisted by her daughter, Mrs. Pratt. Here our company was augmented by Mrs. Bruce and Miss Morrisey, both of Plymouth, who have done so much to make our reunions at Plymouth such pleasant occasions. On Sunday, June 18, Mrs. Bruce and Miss Morrisey were hostesses at a tea in honor of the Class at the Harlow House, which was greatly enjoyed. All in all, it looks very much as though the good old Puritan town of Plymouth will be the established place of the class meetings.

At the meeting held on June 17, our esteemed classmate, Richard E. Schmidt, was unanimously elected president of the Class. — Ralph E. Curtis has notified the Secretary that he has changed his address from Roxbury to 35 School Street, Danvers, Mass. — NATHANIEL T. VERY, *Secretary*, 15 Dearborn Street, Salem, Mass.

1888

The big event for the Class since our last notes was the class dinner at the Engineers Club in Boston on June 14, tendered by I. L. Sjöström. It was a grand success. We were even able to forget for the evening that tenderloin of beef was still a rationed item. After we had renewed old acquaintances, our host called to mind in a brief talk a few of the marvelous changes and accomplishments that have taken place during the 56 years since we left our alma mater.

Our Class, he reminded us, was the 20th class graduated from the Institute. General Francis A. Walker was president, and the Reverend Phillips Brooks, D.D., gave the address to the graduates, of whom there were 77. A great many things, he continued, have happened since that June day of 1888 in Huntington Hall. The Boston and Maine then had its depot in Haymarket Square; the depots of the Fitchburg, Eastern, and Boston and Lowell were on Causeway Street. Mr. Westinghouse brought his freight train, equipped with automatic brakes, and the Class was invited to ride on it between Fitchburg and Ayer. The Boston subway was completed in 1898. The present Art Museum was built, its predecessor having stood on the site of the Copley Plaza. The new Technology buildings in Cambridge were dedicated in 1916. There were only 579 students in 1884, our freshman year, against the 3,000 of recent years. Symphony Hall was built in 1900; the Rogers Building on Boylston Street

was demolished in 1939, and the old Boston Public Library, in 1895. We had horsecars in 1884, when we entered Technology. We have seen the following inventions come into use: the telephone, automobile, flying machine, radio, wireless telegraphy, moving pictures. We have been through three wars: the Spanish War, World War I, and World War II. We have seen the Johnstown flood with loss of more than 2,000 lives, the San Francisco earthquake, the destruction of Saint-Pierre by volcano, the sinking of the *Titanic* with loss of 1,500 lives.

Our President, Ned Webster, had planned to attend this dinner but found that it was impossible to do so. Instead, he sent by word of mouth, through the Assistant Secretary, notes on the outstanding accomplishments of the Institute in the war effort and the paramount part being played by Dr. Compton. Your Secretary was prevented from attending by transportation difficulties from his island fortress on the coast of Maine, where he remained until October 15, before returning to 39 Wiggins Street, Princeton, N.J.

Sjöström certainly did things up brown, producing a photographer who took pictures of the group around the dinner table, to be sent to each of them, with one extra for the Secretary, — the best picture the Class ever had taken. Generous contributions were made by those present to the class Fund, and the Assistant Secretary suggests that we hint to others whom the spirit may move to send in their contributions to the Secretary, as the Fund is diminishing quite rapidly. Our host had sent out 50 invitations omitting distant members, and 25 replied, of whom the following were present: Sjöström, Conner, Ellis, Faunce, Runkle, Linzee, Bridges, Hamblet, Thompson, Bates.

Fred Nichols wrote from 425 South Rosalind Avenue, Orlando, Fla., on May 17, saying he had played contract three times a week all winter and could play golf but — having only one good eye — although he could hit the ball, he wouldn't know where it was going. — During his six months of summer on Chebeague Island, your Secretary has toured all over its 16 miles of road, to church, post office, and stores, and once a week to Portland by boat for the movies. — BERTRAND R. T. COLLINS, *Secretary*, 39 Wiggins Street, Princeton, N.J. SANFORD E. THOMPSON, *Assistant Secretary*, The Thompson and Lichtner Company, Inc., 620 Newbury Street, Boston 15, Mass.

1889

The Boston Sunday *Post* of July 9 has an interesting article about General George C. Marshall's connection with Massachusetts at the time when our Gardner W. Pearson was adjutant general. We quote the following excerpt: "Of the scads of material written about America's topmost general, George C. Marshall, now chief of staff, nothing heretofore has ever been revealed of his early days as a member of the staff of the Adjutant-General of Massachusetts. For some unaccountable reason the years of 1911-12 escaped the attention of the general's biographers. . . . Marshall, then a lieutenant, came to Boston at the insistence of Gardner W. Pearson of Lowell who was appointed adjutant-general by Governor Eugene H. Foss. Pearson,

a veteran of the Spanish-American war, first ran across Marshall in 1909 when Marshall was assigned to the 6th Regiment of which he was Captain. Marshall appeared on the scene, a youngster of 29, to teach the old veterans modern methods of warfare. Such an undertaking was a tremendous task which was readily resented by the older men. They couldn't see for the life of them how a young squirt only a few years out of Virginia Military Institute could possibly show them anything new. But Lieutenant Marshall soon impressed the old warriors with his new views and, by tactfully suggesting methods without offending the old guard, he soon gained their confidence. There came the time when he wanted to demonstrate the new and approved way of digging slit trenches; instead of drawing designs upon a blackboard, he went out into the field and dug the trench himself. Acts such as these soon won for him the favor of the men, and though he was younger in years than most of the men who stayed in the army after the Spanish-American war, he was considered one of them. He had a way about him that wouldn't offend anyone. Diplomatically he'd get his ideas across in such a manner that he'd make you believe it was your own idea. Gardner Pearson saw in him a man that would be a credit to any army, and as soon as he was given the job of adjutant-general of Massachusetts he knew that he could make the State militia one of the outstanding units of its kind in the country if he could get the services of Lieutenant Marshall. The other day, in his Lowell office, Mr. Pearson revealed that Governor Foss gave him a free rein in fulfilling the duties of his office, and his first official act was to draft Marshall. In selecting his man Pearson had something in common with President Roosevelt but, Pearson says, 'I saw him first.'"

Henry Howard was in the hospital for two weeks last spring after dropping a 10-pound weight on his toe. Complete recovery is reported. — The Secretary has news, but no particulars, of the death of Lyman A. Ford on October 17, 1943. — *Mechanical Engineering* for May published a long and very interesting account of the life and work of George Orrok, whose death on April 6 was reported here in June.

The Secretary received and suitably acknowledged a generous contribution to the class treasury, along with a touching letter from Mrs. Roland N. Cutter, written on April 25 and by her permission reproduced herewith: "Roland thought a great deal of his Class at Technology, and you should have been told before this of his great appreciation of all you did for '89. But it was a great shock to me when he died so suddenly of heart trouble on January 28; he had been making such a fine recovery from his fractured hip, which had sent him to Faulkner Hospital the middle of last November. After his first week at the hospital, he was not in pain and was never in a cast. He had the wonderful silver nail operation, performed by that marvelous surgeon, Dr. Gerald L. Doherty. In addition to being a very fine surgeon, Dr. Doherty has been our doctor and personal friend for 20 years. His very presence inspired cheerful courage in Roland every time he saw him, which was often, as the Doctor is on the staff of Faulk-

ner. So Roland really had an enjoyable stay at that fine hospital and came home on New Year's Day and had a very happy month at home. His hip was mending beautifully, and he was looking forward to using canes soon, and then to walking naturally. He was even wondering, 'If Walter Kilham *should* be good enough to have the '89 reunion at his house,' whether he could not ride in to 42 West Cedar Street. It had been a great disappointment that, on account of a death in the family, he had missed the treat to which he had so looked forward, of being at your home in 1942. I suggested his writing the reason to you, but he did not feel like 'putting the sadness of his personal affairs into the class reunion.' This was exactly like him. I have beautiful memories of that last month at home, as he was feeling well and happy up to the last hour, when his spirit took flight like a bird soaring into the Invisible. And I am grateful for 38½ years of happy companionship. The only big fault he had was his great modesty, carried to the point of self-depreciation. It was only since he retired that I had any idea, through other men's telling me, of what he had accomplished during his long years in the engineering department of the city of Boston. Our dear friend, Mrs. Josiah Quincy, wrote thus to me after Roland went: 'Of course it is well with him — he has been promoted — a much beloved gentleman has been called up higher, but for you . . .' The only thing for me is so to live that the rest of my life will be worthy of him. I send my sincerest appreciation of what you have done for '89 and my best wishes to you and to the Class." — WALTER H. KILHAM, *Secretary*, 126 Newbury Street, Boston 16, Mass.

1891

Our good friend, Horace H. Ensworth, died on January 13 at Hartford, Conn. We did not know about it until June, when his associate, Sprague, wrote about some pictures which he took at our 50th. Horace had two operations in 1943 and shortly before his death wrote that he was out again. An attack of influenza followed. Uncle Horace, as some of us called him, was a regular attendant at our reunions, and Sprague came as chauffeur and photographer. Many will remember the birthday cake episode and Horace putting a silencer on Clarence Whitney, who tried to interrupt the proceedings. Sprague says that shortly before Horace died, he talked about our 55th, which he had hoped to attend. Quiet by nature, he was fond of old friends, as we were of him, and we shall miss him. Your Secretary lived on the same street with him in Hartford for five years, as did F. Campbell Moore, with Clarence Whitney only a block or two away — all fine fellows, and none left. Horace never married but made his home with his sister, who is still living.

The following information is sent by Sprague: "He came into the business of L. L. Ensworth in 1891 immediately after leaving the Institute, and the business name was changed to L. L. Ensworth and Son (one of the largest and the second oldest steel and mill supply houses in this country, having been established in 1801). He later became treasurer and president and was active in business until shortly before he died. He was a director of the Travelers

Bank and Trust Company, the Connecticut River Banking Company, the Travelers Insurance Company, and the Charter Oak Fire Insurance Company, all of Hartford. He was a member of St. Johns Lodge of Masons in Hartford, the Wampanoag Country Club, Inc., the Hartford Club, a canoe club, and several fish and game clubs. His hobby was photography. For recreation he went fishing and hunting and played golf. He was a generous man and an ideal employer, always ready to assist any who needed help. He was one of Hartford's best known and respected business leaders. Many Hartford business concerns were helped over difficult periods by his advice and financial aid." Sprague also sent a copy of a testimonial to Horace by the Travelers Insurance Company, part of which is given here: "From the earliest days of Colonial America the Ensworth family has occupied a prominent position in the industrial activities of Connecticut. The friendly disposition and unobtrusive generosity, attributes of a true gentleman, exemplified in the life of Horace H. Ensworth may well have been the accumulated inheritance from these distinguished forebears. The ability shown in the prosecution of his particular branch of the steel industry was the result of his technical education and of the long years of experience in his chosen occupation. These qualities combined to assure a successful career not only in material things but also, and more importantly, in the affections and loyalty of those associated with him."

We have received notice from the Alumni Office of the death of Walter P. Henderson on July 31. We have not heard from him for many years. While at the Institute he was a special student in Architecture. From the same source we have received notice of the death of William H. Tucker of Jacksonville, Fla., who died sometime in 1942.

Gorham Dana wrote that he was having a fine summer at his home near Lake Sunapee, N.H. He mentioned going to a talk by Bradley Dewey on the rubber situation at Colby Junior College. Dewey has a summer place near Dana. Gorham was planning to return to Brookline the latter part of September. An earlier letter from Gorham reads in part as follows: "Classmates who attended any of the Sunapee reunions may be interested in the distinguished visitor who was here last week — Harold H. Burton, the Senator from Ohio, who gave a Fourth of July oration at a Unitarian convention at Soo-nipi Lodge. He is the son of Alfred E. Burton, the professor (later Dean of Technology) under whom I served as an assistant in Civil Engineering after graduation. He was born in Newton while we were at Technology but moved to Ohio, where he cleaned up the city of Cleveland and later became senator. He is a very attractive speaker and gave a fine address. One of his daughters attended Colby Junior College at New London. The Class is conspicuous by its absence now, with Walter Douglass in Washington, Frank Howard working hard at home, and Charlie Aiken gone. Aiken Manor has been sold, I hear, but Dorothy still runs the log cabins. Under present gasoline restrictions we cannot go over there for her delicious Sunday night suppers, as we used to."

A recent letter from Charlie Garrison in Santa Barbara, Calif., runs in part as follows: "We are well and enjoy the com-

pany of many old friends here. My sister has lived near by for the last few years, and Margy's sister Frances has a house not far from ours. We are growing older, but the process seems to take longer here than in many other places. At a lunch recently where some 13 of us were present, five were over 80 and one of these was 85, and almost all of them in good condition. While you were having the heat wave, we were having a furnace fire each morning! In fact, it has been only during the past few days that we have not needed it. We may catch it later, but every day we have a fog off the ocean which tempers the heat. My brother Frank wrote from Arlington Heights, sending a record of the daily temperatures for that hot week. His wife has recently died after an illness of nearly two years, and we hope he can come out here for a while. We miss our trips about the country very much, but we have only enough gas for shopping. I hadn't heard of Horace Ensworth's death. I was very fond of him, and we were closely associated in our Technology days. Enclosed are two of the musical programs we have given, our 81st concert being on August 1 of this year." Charlie gives classical Victrola concerts to his friends.

A nice long letter from Walter Douglass, who is now in Washington, reads in part as follows: "When your letter was received, I was fighting an attack of arthritis, which had never discovered me before, and on May 20 came into Washington to the hospital for tests, X rays, and so on, to ascertain the cause, if possible. I stayed there five days, and since then have been with my daughter's family on Calvert Street. The arthritis has been practically eliminated . . . [He then mentions a bad burn on both heels from an electric pad, which laid him up for two months. Later he speaks of Fort Belvoir, where he was before going to Washington.] . . . This interruption to my efforts to aid Uncle Sam was, of course, a great disappointment, for I was enjoying the work and, for the two months I was there, seemed to be of some help. The work I was doing at Belvoir was in the model shop of the camouflage division. There are 35 to 40 in this department, mostly men — a few women — who come from a variety of occupations and professions, and I met as fine a group to work with as I ever saw. Without the miniature hobby I should not have been considered. So you see I am eager to get back and on the job again."

A letter from Robert Ball in England reads as follows: "You can scarcely imagine, living as you do at the hub, what a welcome message your notes bring to one on the perimeter. Old faces and glorious times are recalled, and the quickening of memory is a delight. It is one of the compensations of old age that the vision of distant scenes is more acute than those of yesterday, when once it is lit up by suggestion. Yes, of course, I remember James Swan perfectly, big alike in stature and good nature, and a dominating personality withal. Among the aspirants to knowledge of naval architecture whom Professor Peabody gathered together, none could have had more enthusiasm than Jim for all that concerns the sea and seafarers. He carried with him to the Clyde the same ardor; my friend Robertson '92, a native of Glasgow and the second man from Scotland to enter

Tech, would testify that his time there was well spent; they had many a crack together over the canny Scot and his ways and the art of the shipbuilder.

"The Institute has been in the news here lately. As you probably know, an interchange of staff and postgraduate students between the Imperial College of Science and Technology (one of the constituent colleges of London University) and M.I.T. has been arranged for after the war. The Rector of the Imperial College, Dr. R. V. Southwell, took his degree in Cambridge in 1910. Of the two institutions the Massachusetts Institute is the one with the longer history. A criticism of the Institute sometimes heard here is that the name is too long. There is not much choice between the two in this respect. I think the proposal of interchange between educational institutions is all to the good. If I may speak with candor, I would say that each side has something to learn from the other. In the past 50 years both countries have drawn together much more than appears on the surface to those who have not been closely identified with scholastic work. And since there is still a gap to bridge, let M.I.T. and the Imperial College of Science lead the way. I have not seen a Tech man here lately, notwithstanding the number of Americans now in England. You will, I hope, let me know if any of our classmates' descendants are in England."

The following dispatch from Savannah, Ga., on August 12 appeared in a Washington paper: "James Swan, former principal marine engineer of United States coast guard, Washington, D.C. who died last February, was honored here today at the launching of a liberty ship bearing his name." — A letter from Ed Smith in Providence comments on the foregoing: "Unfamiliar with the various current nautical designations for service craft, I am hoping that the boat is worthy of our Jim, of whom 'Nature might stand up and say to all the world, 'This was a man!'"

"There comes to mind his recital of how he achieved his first sailing craft. He was only a youngster, and his father deemed him too young to navigate a sailboat. Jim, however, was so persistent that finally his father told him that when he was able to swim out to the point and back, he could have a sailboat. Now don't ask me what point — I do not know. All I recall is that the swim was a tough one for a man, let alone for a child — possibly a small replica of the Hellespont swim. The proposition threw a wet blanket over Swan's spirits for a time, but he wanted that boat. Finally he made the attempt and did it. It was just all he could do to make the return trip, but when he arrived at the home beach, he was not too tired to get into his clothes without benefit of a towel and beat it for home. He burst into his father's study, or whatever that gentleman's domestic habitat was, yelling, 'I done it, Dad, I done it!'"

"Dad" had supposed that the consideration was so tough that he would not be called upon to honor that promise and had promptly forgotten it. "What is it you've done?" he inquired. "Why, Dad, you promised that when I swam out to the point and back, I could have a sailboat, and I've done it." Jim got his boat."

The following changes in address have been received: Walter B. Douglass, Prentiss

French, 4020 Calvert Street, Northwest, Washington 7, D.C.; Francis B. Choate, 227 Edgewood Avenue, San Francisco 17, Calif.; Ambrose Walker, The Brynmore, Annisquam, Mass. (summer address); Gorham Dana, Davis Hill, New London, N.H. (summer address). — HENRY A. FISKE, *Secretary*, Grinnell Company, Inc., 260 West Exchange Street, Providence, R.I.

1893

Because of the unexpected death of Fred Fay, work on our 50th anniversary book, which he had intended to supervise, has been greatly delayed. It is now well under way and should be completed the latter part of this year. Incidentally, if any classmates who have not contributed toward its publication wish to do so, their contributions will be greatly appreciated. Checks should be made payable to "Class of '93 M.I.T." and sent to Charles M. Spofford, 11 Beacon Street, Boston.

We have a new Class Secretary, appointed by our Class President, Fred N. Dillon, and he will hold office until our next class meeting, when a vote will be taken. He is Frederic Hale Keyes, who served as assistant secretary for several years after our graduation and is now located at the Institute, an exceptionally advantageous place to continue the work so well done by Fay ever since graduation. During the war Keyes has assisted in Selective Service relations at the Institute and is now doing special work for the Division of Industrial Co-operation in addition to the supervision of the real estate bequeathed to the Institute by A. Farwell Bemis.

As you all know, Keyes has been class agent of the Alumni Fund for the past two years, and you should be interested to learn that, as of August 31, '93 has this year exceeded its quota for the number of contributors by 31 per cent and the amount by 7 per cent. — GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston 16, Mass.

1894

The great event for '94, our 50th anniversary reunion held in Boston and Swampscott, has now passed into history. It was a notable and highly enjoyable occasion in general, although accompanied also by poignant regrets that some who had expected, even up to the last, to be with us were prevented by illness, either personal or in the family, from joining in our festivities. As announced in the Secretary's final letter of arrangements, a goodly group met at the Dean's office at Technology on the morning of June 9, and after the usual warm greetings of the old stand-bys and the informal introductions which were occasionally necessary, especially of the wives who graced the reunion and added greatly to it, small knots of the group visited such points of interest as the Alumni Pool, the various new laboratories, the Paper Museum, the Nautical Museum, and other places. Walker Memorial, being in the hands of the Army, was closed to visitors. At one o'clock we proceeded to the President's House, where we were cordially welcomed by President and Mrs. Compton, who were our hosts at a most enjoyable luncheon served at small tables on the terrace overlooking the attractive garden and in the spacious, adjoining reception room. It was

a perfect beginning for our home-coming. Members of '94 at the luncheon were: Mrs. Darragh de Lancey (Harriet Gallup), Waterbury, Conn.; Charles G. Abbot, Washington, D.C.; Norwin S. Bean and his wife, Manchester, N.H.; Alan A. Claffin, Winchester; John W. Chapman and his charming daughter, Newtonville; Class President Horace A. Crary and his wife, Warren, Pa.; Henry F. Copeland, New York; Edward M. Hunt and wife, Portland, Me.; Earl S. Jenckes, Wyomissing, Pa.; H. Osgood Lacount, Somerville; William D. McJennett, Scituate; Luther R. Nash, Ridgefield, Conn.; George Owen, Newton; Arthur L. Patrick, Centerville, William H. Pratt, Lynn; Arthur A. Shurcliff and wife, Ipswich; Ferdinand A. Schiertz and wife, Roxbury; George A. Taber and wife, Reading; George Taylor, Auburndale, Albert B. Tenney and wife, Lexington; J. Earleston Thropp and wife, Hagerstown, Md.; Arthur W. Tidd, White Plains, N.Y.; Leonard Tufts, Pinehurst, N.C.; Henry E. Warren and wife, Ashland; and Samuel C. Prescott and wife, Brookline.

The Alumni Secretary, Charles E. Locke '96, assisted Dr. and Mrs. Compton in welcoming the guests. The luncheon was a most delightful occasion, and we left with a deep sense of gratitude to our hosts for their charming hospitality.

Mrs. de Lancey was obliged to return home immediately after the luncheon, as her son, Lieutenant Commander de Lancey, had suddenly been given his first leave for more than two years and was arriving the following morning. A few others had to return to their various business engagements and other duties. There were fortunately enough cars available to take the rest of the party to the New Ocean House at Swampscott, which was our main reunion center, and by five-thirty all of us had arrived and after some delay, due to shortage of help, had got settled in the rooms which had been arranged for in advance. The group quickly got on a familiar reunion basis, and the hour before dinner was the occasion for re-gathering our forces, and especially for the formation of a constantly enlarging and most agreeable circle around a table in the cocktail lounge, where we toasted the present and the absent ones. It is surprising how a table can increase in size by accretion and how there is always room in the circle for the newcomers as they appear. We were joined by William H. King and his wife and daughter, who came directly from New York, and by George N. Leiper of Philadelphia. Leon K. Davis from Hartford was expected but could not arrive until Saturday. A section of the large general dining room was reserved for the Class with tables so arranged that at each meal the table companions could be varied as we desired. This added to the general informality and good fellowship. At this point let it be said that the ladies were not only a most congenial group among themselves but that in every way they added greatly to the pleasure of the whole reunion.

After an excellent dinner on Friday evening a special room had been reserved for us, and here George Owen gave a splendid showing of moving pictures in color of race week at Marblehead, of dinghy sailing on the basin at the Institute, and of the sea trials of some of the new war vessels built

at Bath. George's familiarity with all classes of boats and with sailing made this evening a high spot in our reunion program, and all those present were enthusiastic and extremely grateful to him for the remarkable entertainment he provided.

Saturday was largely a day of go-as-you-please. A few played golf, and the usual five-year struggle for class championship was again carried out between Bean and Crary. The Secretary thinks both won, but is not certain. Anyway there were no other contenders who could give adequate battle. No one played tennis, and croquet apparently made no appeal. We must be getting on in years! Some strolled along the beach; Henry Warren exercised his camera; some of the ladies visited near-by shops; numerous groups played contract; but for the most part we were content to make it a day of porch conversations, of renewing old friendships, of inquiring for absent classmates and in general of comparing and catching up on the experiences of the years since former meetings. The day passed all too rapidly. In the late afternoon President and Mrs. Compton arrived to join in our class dinner, as did others who had found it necessary to spend the day elsewhere. We were glad to welcome Mr. Jay, Earl Jenckes' son-in-law, as a dinner guest.

At seven o'clock we sat down for the class dinner in a private dining room. The dinner was a jolly and informal one and at the same time a dignified occasion, with President Crary presiding. At his right was Mrs. Compton; at his left, President Compton. An excellent dinner was served. At its end Crary asked the Secretary to make his usual report on the Class since the preceding reunion, our 45th, which was held at Wianno on Cape Cod. The report mentioned the difficulties of arranging an adequate program in wartime, the fine support given by Claffin and Tenney as a reunion committee, and also the enforced absence at the last moment of Frank Lovejoy, Leslie Moore, and Sam Blake, and their wives, all of whom had planned to be present. The Secretary read extracts from some of the splendid letters received from distant classmates who were prevented from coming by the difficulties of transportation and mentioned the many letters from others who sent greetings to the Class. Space does not permit quotation here, but heart-warming letters were received from Bates, H. M. Chase, Kittredge, Davies, Robeson, Nowell, Sperry, Parker, F. B. Abbott, Dates, Dana, LaMotte, Price, Tom Richards, Dan Richards, Horton, A. F. Hunt, Greenleaf, Bigelow, Meade, Haven, and others. The necrology since our last reunion was read. In the list of 32 who have passed from the earthly scene since our reunion five years ago are many who had endeared themselves to the Class and will be held in loyal memory, and others who, though less well remembered perhaps, had carried their life-work with integrity and distinction and high professional attainment. We shall treasure the memory of Bovey, Clement, Curtis, Cutler, Day, Dickey, Fowle, Hazelton, Jenney, Reed, Robbins, Savage, Sawyer, Simonds, Swanton, Westcott, and Weston for what they were as well as for what they did. Following the reading of the necrology, President Crary requested that we should stand in silent recognition and honor of our departed classmates.

A happier item presented was the record of the Class in its support of the Alumni Fund, as a result of the fine work of our Class Agent, Al Tenney, and the desire of the Reunion Committee that we celebrate our 50th by giving cordial support to this project rather than by attempting a special gift to the Institute of a possibly unneeded article. As a result, we were able to guarantee to President Compton that the Class would not only meet its quota but would make at least 250 per cent of quota. This final item of the class report was heartily applauded.

Arthur Shurcliff, poet at our class day exercises 50 years ago, again indulged his muse and read an excellent poem written for the occasion, which was received with acclaim. Unfortunately space and The Review's ironclad regulations do not permit its reproduction here. W. H. Pratt, whose memory, as well as inventive ability, is famous, gave us a witty talk on the value of π , first repeating from memory the figures following the well-known 3.1416 to 72 further decimal places, and then briefly speaking of various mathematical systems of numeration which have been used in calculating its value, much to the mystification of the gang. He ended by asking himself, "Why all this effort?" and giving the partial answer, "It's easy as π ."

As a fine ending for a fine occasion, our guest of honor, Dr. Compton, then expressed his pleasure at being with us and spoke especially of some of the men in the Class whom he had known and the fine service they had rendered the Institute as members of the Corporation, visiting committees, and in other capacities. As usual, his talk was sincere, friendly, and entirely delightful. So ended the day and for the most part, the reunion. On Sunday morning we had our final breakfast parties and soon departed. The glorious 50th was over.

These notes, having already grown to large proportions, will terminate here. Several items which would ordinarily have been sent at this time will be reserved for the next issue of The Review. — SAMUEL C. PRESCOTT, Secretary, Room 3-233, M.I.T., Cambridge 39, Mass.

1895

The Alumni Fund is progressing. We have reached 96 per cent of our contributors' quota, and it is hoped this will shortly be 100 per cent. Some of the boys are unable to subscribe to the Fund; your Secretary understands full well this condition. Yet there are a few who have procrastinated, others who are apathetic to the cause, and still others who may have hesitated because they fear their inability to give all they desire. Therefore, let all who really can, do their bit, and we shall soon go over the top.

Charles Greeley Abbot who has been associated with the Smithsonian Institution, Washington, D.C., since graduation from Technology, has retired and resigned the secretaryship as head of the institution; he will continue his connection as research associate only. Dr. Abbot's interests and accomplishments are world-wide and world-known. He has invented many devices for harnessing the sun's energy and putting it to work for the benefit of man. He uses the sun's rays to heat his home and to cook his meals. He has used it to power a steam

engine. Recently he demonstrated some apparatus that converted more than 15 per cent of solar radiation falling on its mirrors into mechanical power. The Smithsonian is possibly best known as the repository of Charles A. Lindbergh's plane, the *Spirit of St. Louis*, which is located in its Arts and Industries Building; it also has the *Winnie Mae*, the plane in which Wiley Post flew around the world in 7 days and 19 hours. But the Smithsonian Secretary's interest in aviation is wider and more extensive than these Smithsonian exhibits. Dr. Abbot was for years a defender of S. P. Langley's claim to the title of inventor of the airplane as opposed to the Wright Brothers' claims.

Beside his S.B. and S.M. from M.I.T., Dr. Abbot has received degrees from Melbourne University, Case School of Applied Science, George Washington University, and the University of Toronto. He has received to date a number of scientific medals and is a member of many scientific associations including those of France, Britain, Germany, and Mexico. He is also an accomplished writer; besides his volumes on birds, he has authored *The Sun*, *Everyday Mysteries*, *The Earth and the Stars*, *Fundamentals of Astronomy* (with S. A. Mitchell), *The Sun and the Welfare of Man*, and *Great Inventions*.

Harry J. Sheafe is still in California, having moved from Pacific Grove to San Carlos. Alfred Tucker Taylor, who was with our Class during 1892-1893 in Architecture, passed away on March 28; we have no address or further details. Allan Percy Brown, IX, Technology 1892-1895, also passed away on May 11. No address is available.

Brown was a teacher. He attended West Point Military Academy, the University of Nebraska, and the University of California. He had been head of the commercial department of Tilton Academy; he was also connected with schools in Salem, Mass., Chattanooga, Tenn., Racine, Wis., Merced, Calif. In Imperial, Calif., he organized the department of high schools. He founded and was president of Visiting and Consulting Teachers, Inc., of San Francisco and Santa Barbara, Calif. We do not know whether or not Fred Wallace Draper has retired, but we do know that he can be found at 2884 North Cumberland Street, Portland, Oreg. Recently we have learned that John W. Cooke, formerly of Erie, Pa., has suffered a serious illness. We believe he is now recuperating at Belleville, Mich.

Judson C. Dickerman has retired and has forsaken the district of Washington, D.C., since July 1. He writes that he bought a house and nicely laid out property, slightly over one acre, within the city limits of Charlottesville, Va., about a mile from the university, where he hopes he can make some contacts which will give him an intellectual outlet. He will be located 45 miles from the home of his oldest son, whose three small children will be of much interest to him. Judson's younger son is in England, in the chemical division of the Army. He hopes he may be able to attend the 50th reunion of the Class. He philosophizes when he tells us: "It is now the old situation of plenty of money, no time; plenty of time, no money." — LUTHER K. YODER, Secretary, 69 Pleasant Street, Ayer, Mass.

1896

This issue marks the beginning of the new season, and the Secretaries wish to extend greetings to all classmates and express the hope that they had a good summer and are back on their respective jobs going strong to get things done and to make their contributions toward the winning of the war.

The major activity seems to have developed in Washington. William E. Haseltine, now a colonel at the Army War College, though better known to us as Billy Haseltine, became aware that there were thirteen '96 men located in and around Washington, and he conceived the fine idea of having them for dinner at the Army and Navy Club on Friday, July 28. Those who found it possible to attend were Joe Clary, N. C. Grover, Admiral Hamlet, Marsh Leighton, Bradley Stoughton, George Stratton, and of course Haseltine himself, making a total of seven. The dinner went off so successfully that Harry Hamlet decided that another one should be pulled off, and he invited all those present to come again to the same place. Haseltine claimed particular enjoyment in acting as host, and also in meeting again classmates many of whom he had not seen for 50 years. Someone of an arithmetical mind added up the ages of the seven present and found that they totaled 498 years. Replies were received from the six other Washingtonians of '96, and also from some other classmates who visit Washington frequently and to whom Haseltine sent invitations, with the hope that they might happen to be in Washington on July 28. Ed Sturtevant, who is at the Shoreham Hotel in Washington, was unable to get away from his duties that night. Billy Clifford, who has the title of lieutenant colonel, inactive reserve, and who is director co-ordinator of the Loudoun County Office of Civilian Defense in Leesburg, Va., lamented that the date coincided with his 69th birthday, and he had already been committed to stay at home that day for proper observance of the event. It looks as if Billy would have been the baby at the meeting if he had attended. Billy Andrew of Cincinnati could not arrange his Washington trip schedule to be there on July 28. Admiral Bakenhus in New York had to be in Pittsburgh on July 25 and could not make it back to Washington in time for the gathering. Will Coolidge wrote that he was getting a short vacation at his little camp in the Adirondacks, and of course no one would expect him to forego the cool, peaceful quiet of the Adirondacks for the opposite conditions in Washington, even though it was the occasion of a class dinner. Paul Litchfield in Akron hoped at first that he might get there prior to flying to London at the end of the month on a government mission, but the call came for him to be in New York on the day of the meeting. Lou Morse in York, Pa., seriously considered attending, but at the last minute an unexpected emergency kept him away. Dan Bates in Philadelphia almost wept because he was going to be in the West at the time of the meeting. Incidentally, Dan wrote, Haseltine is now in active service at the Army War College, where Bates took the division staff officers' course in October, 1918, just before he went to Texas as division Ordnance officer of the 15th Division, which was expecting to go to France early

in 1919. Ever since 1921 Dan has been in the Reserves as a colonel of Field Artillery and for years was very active in it. In the present fracas he has been somewhat irked because the Army gave him no encouragement to return to active service, even though he began pressing them a year or two before Pearl Harbor. As it is, Dan has been doing his bit by teaching mathematics, college algebra, plane and spherical trigonometry to young boys in khaki and to some civilians at the University of Delaware, at Newark, five days a week since the first of May, 1943. He finds it most interesting, especially the revival of his mathematics, and he has been trying to cover his routine business affairs in half a day each week at his Philadelphia office. His western trip was a holiday from his teaching, which was to be resumed at the University early in September. Minor Jameson and Clarence Perley were away from Washington at the time of the dinner. Billy McAlpine found it impossible to get there that night. John S. Rowe reported that he was not able to get out much these days for evening affairs. Haseltine also wrote that he had received a long letter from Steve Crane in Pasadena, Calif., who wished to be remembered to all those present at the dinner. The two class Secretaries in Boston regretted exceedingly that they were unable to make the trip to Washington for the evening.

The second Washington dinner came off at the Army and Navy Club on September 12, with five members present and Harry Hamlet as host. Haseltine reports that the attendance comprised Leighton, Stoughton, Jameson, Hamlet, and himself. A number of others would have been there were it not that they were either out of town or had previous engagements. It was decided that other dinners would be held later on in the season from time to time, as those who have attended these first two of the series are most enthusiastic over the idea.

As Cornelia Tuttle Klein, the daughter of Mort Tuttle, is one of the secretaries at the Institute, the class Secretary is able to keep close track of her father. The last report is that Mort spent his summer vacation in the Massachusetts General Hospital, going there in May for an operation and leaving early in August. His stay was prolonged to give him a good rest and relieve a serious arthritic condition in his knee. After leaving the hospital, he recuperated for a month at his home, and then went back on the job in September as head of his construction firm, the Morton C. Tuttle Company in Boston, much benefited and going strong.

Lloyd Wayne in Indianapolis wrote the Secretary in June one of his characteristic letters telling about having a session with Billy Andrew, who happened to be in Indianapolis on business, and also reporting that at school he came to know Marble intimately, because Wayne was commuting in his freshman year from Lynn and Marble was also commuting on the same train from Swampscott, or some other station along the line, and consequently they were riding together much of the time. In August Wayne started off on one of his annual trips, which had to be by rail this year instead of by automobile as usual. He went from Indianapolis to Ann Arbor, and on to Detroit, and then to New York City, where he had luncheon with John Tilley. He ar-

rived in Boston from New York and the Secretary had the pleasure of a luncheon with him on August 30, and again on September 1. Wayne was actually staying at Scituate for a week or more and assumed the role of a commuter, coming into Boston every day to call upon his friends. He was looking fit as usual and reported that, although retired, he was keeping himself busy and happy.

No word has emanated from Virginia in the form of a joyful message from Arthur Baldwin to the effect that some classmate has graciously reacted to the appeal of the Secretary in the last issue setting forth Arthur's crying need for a power lawnmower, so it is to be assumed that he still continues to push his hand mower. However, if the same dry weather prevailed this summer in Virginia, as in New England, his lawn-cutting activities must have been greatly reduced.

Back last June Mrs. Jackson wrote that Henry had become overambitious in his victory gardening, which resulted in hospitalization to give his heart a rest. A later report from Mrs. Jackson was to the effect that Henry was getting along very well and had returned to his home, and was slowly getting back to normal, but the doctor's orders were that he would have to go slowly for some time. Victor Shaw wrote the Secretary a letter of sympathy as a fellow classmate afflicted with heart trouble. Victor had a heart attack three years ago when prospecting in the hills 50 miles east of Phoenix, Ariz. He was hiking on foot in the hot desert sun and forgot about taking salt, so that he had a bad case of heat prostration along with his heart trouble. The next year he made another trip to the same locality, but used his will power to slow down and had no difficulty. He is now definitely committed to a slower pace in his present life in Libre Canyon near Sandberg, Calif. Incidentally, Shaw was one of those interested persons who called the Secretary's attention to the widely publicized statements by Dr. Dock in the New York State *Journal of Medicine*, commented upon in an issue of *Time*. Dr. Dock insisted definitely that the absolute rest treatment now being prescribed by heart specialists for their patients is all wrong and that lying in a prone position for a month is extremely harmful to adults and leads to serious complications.

Here is a fish story reported by Rockwell and Damon. The latter had to make a business trip to Maine in June and found it possible to include Mooshead Lake in his itinerary, so he took John Rockwell along with him. They left on Saturday, June 10, and arrived back just a week later, on Saturday, June 17. They made their fishing headquarters at a camp on Spencer Bay on Mooshead Lake, 18 miles from Greenville. Last year they had a sorry tale to tell of their spring fishing trip, which yielded only two fish for John and three fish for Fred. This year they broke all records. On the very first day John caught six fish. Fred's record for a single day was one each of the four game fish, that is, one salmon, one squaretail, one togue, and one whitefish. No guide was able to recall any previous occasion when a fisherman had made such a record in one day, especially as whitefish in Mooshead Lake are rare. John's special record for one forenoon was

three "doubles." This means that, having two lines out simultaneously, he for three times in the forenoon had fish on both lines at once. Such doubles complicate the situation and the lines get mixed up, so that rarely are both fish actually landed. As a matter of fact, out of three doubles John got two fish. The total catch for both men during their stay in camp was 25 fish, including salmon, squaretail, togue, and whitefish, which in itself is an excellent record, especially in comparison with the slim pickings of only five fish between them the year previous. They both returned rested from their trip and naturally feeling very jubilant over their prowess. During the summer Rockwell made one of his frequent business trips to Harriman, Tenn., to attend to family affairs there. On this particular occasion he went by train, and Mrs. Rockwell remained in Cambridge and had a good rest. Locke, as Secretary, has been on the job at Technology through the summer, except as he got an occasional week end in New Hampshire. Since Technology is on the year-round basis of three terms and no summer vacation, the Secretary has been teaching ever since November 19, 1943, but with only a light load, so that his teaching and his work as Alumni Secretary have not been onerous.

Walter Stearns spent the summer back in his old residence in Schenectady, N.Y., and writes that he is in fine shape both mentally and physically. With no help around his place he was kept busy trying to keep it up, and this meant that he was out of doors most of the time. He did find time to play 18 holes of golf twice a week or, as he expressed it, he went out to the golf course and tried to hit a ball around the course, but he claims that his score would indicate that it really was not a golf game at all. Perhaps it is what certain golfers designate as the old Civil War game, going out in '61 and coming back in '65. A short note from Bradley Stoughton in August from Nantucket indicated that he was getting a little vacation there, but also trying to catch up with some back work. Classmates must have read elsewhere in *The Review* that we have at the Institute a new dean of architecture in the person of William W. Wurster, and one of the qualifications which he possesses for that job is that he worked for two years in Sacramento under the direction of our classmate, Charles Gilman Hyde, a widely known sanitary engineer. Joe Harrington is listed as becoming recently a member of the American Institute of Mining and Metallurgical Engineers, which is interpreted to mean that Joe is still a "joiner." Boston papers in July announced that Charlie Hapgood as president of the organization operating the Brighton Abattoir had the job of making deodorizing renovations with the object of removing from the atmosphere those objectionable odors which have offended the residents of Allston and Brighton for many years and have even pervaded the pure ozone of Cambridge. Moves to correct the situation have been made periodically for 30 years or more, but only now does it look as if real accomplishment will be reached by having the job in the hands of a good man like Charlie Hapgood. Herbert D. Newell has returned to Portland, Ore., where his address is now 4006 South East Oak Street, Zone 15. Bill

Dorrance paid a visit to the Cape in July and found the East Bay Lodge running under still another manager, named Beghorn, who seemed to be an excellent man, and who had two sons who were Technology graduates, both in the Army Air Forces. The Secretary has not learned how East Bay Lodge came through the September hurricane, but Osterville itself was about in the center of the path, and great damage was done to the Wianno Club buildings and over around Oyster Harbors. Ralph Henry seems to have forsaken his Newton home and has become located on R.F.D. 4, Laconia, N.H.

Paul Litchfield sent the Secretary a copy of his little pamphlet entitled *History's Lesson to Air Power*, which came out last June. Paul's thesis is that there is a big future in the air, both for passenger transportation and for freight, and furthermore, that in addition to a strong military air force it is imperative that in times of peace we maintain a merchant marine of the air to back up the military air force. John Tilley also wrote the Secretary in August, sending along a letter which he had received from Irv Merrell in Florida and also the letter that Merrell had received from Jack Eynon in California enclosing a clipping from the *Country Gentleman* of July, which had to do with an article by Neil M. Clark entitled "Farms for Fighters." This article featured Paul Litchfield's project of developing farms in the irrigated land of the Salt River Valley in Arizona for the use of the employees in the Arizona Good-year plant and of promoting the independence of these farm owners. Incidentally, Eynon reported that his own interest in agriculture was limited to the cultivation of an area 60 by 100 feet minus house and garage, but that it took plenty of time to keep even that green and free from weeds. Merrell's little note left the reader with the feeling that, even though he is a resident of Florida, he may have an urge to vote the Republican ticket this fall. Finally, Tilley said that his building business was flat, as there was no private building of any amount, and comparatively little government war work. He feels, however, that there will be considerable postwar building and a lot of modernization of buildings. There probably will not be many more real skyscrapers in New York City, and the new zoning laws will limit the character of future building there.

In June Admiral and Mrs. Bakenhus made a trip to Chicago, stopping over in Pittsburgh to attend a meeting of the board of directors of the Fort Pitt Bridge Works and a dinner that evening at the Duquesne Club. In Chicago they attended the wedding of a niece who married a young naval officer in Bond Chapel at Chicago University. While in Chicago they also made the rounds of some of Reuben's old boyhood haunts, but found that the city had changed very much and that many of the beautiful beaches on the lake shore, where he had sported as a young fellow, had been destroyed by some of the so-called improvements made by highway enthusiasts. In Chicago he also attended the meeting of the American Shore and Beach Preservation in his capacity as vice-president and member of the board of directors. That organization has the very worthwhile objective of doing what it can for the precious

beaches that still remain. In June the Admiral wound up his year as commander of the New York chapter of the Military Order of the World War by presiding at the annual meeting and dinner at the Waldorf Astoria. Among numerous high-ranking Army officers present on that occasion was Lieutenant General Drum, close kin to our deceased classmate, A. L. Drum. In July Bakenhus was due in Cleveland, and it has already been recorded that he was on the move at the time of the class gathering in Washington, so that he continues his strenuous life, and if his daughter Dorinda were still living at home she could well make to her mother occasionally the statement that "That man is here again." The Secretary has had the pleasure of reading the address which Reuben gave as retiring commander, which set forth the activities and accomplishments under his administration.

July was an important month in that one of Con Young's long and interesting letters came to the Secretary. At that time he and Abby had succeeded in getting back from Florida to their summer home at Bass River on Cape Cod and were well established there. The story of their trip back north was not a story of unalloyed pleasure. They finally succeeded in getting a compartment to New York on May 21. There Abby's niece, a prominent doctor in Bridgeport, Conn., met them and drove them to Bridgeport, where Con got his car from her country home garage in Ridgefield, so that the balance of the trip to Bass River was very enjoyable. They had the difficulty of getting a man to do outside work and a cleaning woman for the inside work, and they also had to contend with the drought on the Cape, but in spite of the lack of rain they were getting a good supply of vegetables from the garden. The activities of the summer colony were in full swing, and Con was serving again as a member of the racing committee, which gave him a pleasant weekly association. Incidentally, Joe Clary and Mrs. Clary met the Youngs at the station as they passed through Washington. A post card just received from Con the day before these notes were due reported on the hurricane of September 14, and thus relieved the anxiety that some of us had because Bass River was not far from the center of the path of the hurricane. Con says that his house, "Pine Shadows," took it firmly and came through practically unscathed, the only damage being that the top facing for a length of about five feet was pushed in for a fraction of an inch. Repair by wood cement and paint can be made at a very nominal expense. The lovely big tree only about eight feet from the house fell, but it caused no damage. He and Abby were ordered out of the house by the state guards at 11:15 and spent the night in the State Highway Police barracks. Their cellar was the only dry one the next morning. (You interpret this.) Thirty-two, or about one-third, of their pine trees were down or badly broken. Supplies of ice for refrigeration were beginning to come in when he wrote, five days after the hurricane. The hand pump was supplying water, and candles gave them light at night. They were hopeful of getting electricity again within three or four days. Some of the large houses on the river front were badly wrecked.

Joe Clary and Mrs. Clary spent two or three weeks around Boston during the last of August and early September, and they called upon the Secretary on Saturday, September 9. Joe was officially retired from the Bureau of Ships in the Navy Department on August 12, but he had accumulated leave, so that his connection was not finally severed until September. His retirement after 48 years of service for the Navy was given much publicity in the Boston papers and also in papers across the country. He entered the Bureau of Construction and Repair as a ship's draftsman in 1901 and in later years became a leader in the design of naval vessels, during the period of radical development in design. He supervised the hull design of the first super-dreadnoughts, and later the design of the first large aircraft carriers of the *Lexington* and *Saratoga* type. The Clarys were spending their time in Boston reviewing the scenes of his boyhood days and seeing historic points. They had visited the Youngs and reported that Con and Abby had almost given up the idea of going to Florida this winter because of the difficulties of travel and of finding a satisfactory winter residence there. Joe's plan is to maintain his residence for the time being in Chevy Chase, Md., but he is looking forward to becoming ultimately established in a small house or bungalow with a little lot of land. He and Mrs. Clary were both looking, and apparently feeling, exceedingly fit.

Elbridge Jacobs is no longer an active professor, having become emeritus at the University of Vermont when he and six others were retired in June with honorary degrees. He still retains his position as state geologist, with an office in the museum and the job of babying his seismograph there. During the summer he spent about half the time at school and the other half at his camp on the shore of Lake Champlain, north of Burlington, and got by fairly well, even though the temperature at Burlington did get up to 101 degrees Fahrenheit one day, and almost as high on many other days. Camp life was enjoyable in a way, but not particularly restful, he reported, because there always seemed to be something that needed to be done at his camp.

Charles J. Barnes died on June 3, in Redlands, Calif., where he had been engaged in orange growing for many years. He was with us in Course V only through our freshman year and had never shown any particular interest in class or Technology affairs. Howard E. Smith died on June 27, in Rochester, N.Y. He had been retired since 1940, but as a graduate of M.I.T. in Course XI, Sanitary Engineering, he had been for 36 years previous with the New York State Department of Public Works and became division engineer in charge of maintenance and operations of 78 miles of the New York State barge canal, and also in charge of maintenance and construction of state highways in six counties of the state. The fact that he was located away from Boston prevented him from participating in class activities and, although interested in our affairs, he never found it possible to attend reunions.

Henry Gardner passed away in Brookline on July 2. Henry was a graduate in Mechanical Engineering and followed railroading for many years. He was the author of various railroad publications and maga-

zine articles on railroad subjects. He retired several years ago and came to live in Brookline. Being of a modest, retiring nature it was difficult to get him away from his home life, although his class interest was high. The Secretary did succeed in getting him out occasionally to a class affair and was able to see him periodically.

At the time these notes are being written, the Alumni Fund records show that our Class has gone up to 108 per cent of its quota in respect to the number of contributors, but it has only 81 per cent of its quota in amount contributed. The Fund year is only one-half gone and Henry Grush, as Class Agent, has hopes that this year we may reach 100 per cent of quota in the amount contributed, which we have not been able to do in previous years. Those readers who have not yet contributed, and also any who feel the urge to increase their contribution, will cheer Henry Grush very much by acting promptly.

Bob Flood writes the Secretary that he is now living at 664 Rush Street in Chicago and his office is at 35 West Kinzie Street, Chicago 10. He has sent the Secretary about a dozen short, interesting, snappy little stories and poems dealing with classmates and other individuals well-known to the members of the Class of '96, and as opportunity and space offers, these will be published one by one, but there is no room for any in this issue. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge 39, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge 38, Mass.

1897

From the April number of the *Skating Review* we learn that our classmate, A. H. Pugh of Cincinnati, is the sponsor and benefactor of the Sefferino Figure and Dance Skating Club of Cincinnati, also that Harry skates several nights a week at the Sefferino Rollerdom and is an accomplished enthusiast in skate dancing. This periodical published a picture of Harry in his uniform as colonel in the ordnance reserve auxiliary of Cincinnati, and we think that it must be his skating that enables him to retain his youthful appearance and the fine physical condition indicated by his picture. We wish that it were possible to publish it in *The Review*.

F. E. Hunnewell, a retired commander in the United States Coast Guard, has been appointed class representative for the Washington Society of the M.I.T., and any '97 man who is in Washington temporarily should get in touch with Fred if possible. — Proctor L. Dougherty is chairman of the committee on literature, art, and decoration of the University Club of Washington, D.C., and he claims that he is now in for a liberal education. From the bulletin of the Washington Building Congress we learn that Proctor has two hobbies: sawing wood and keeping a scrapbook. The bulletin also states that, as a result of the first-named hobby, he has not had to buy any wood for his fireplace for the past 24 years. It might be in order to ask Proctor who owned the wood in the first place and how he got it without paying for it. We learn with regret that Proctor's son has been a prisoner in the Philippines since the fall of Manila.

Word has just been received, without other details, of the death on August 8 at

Durham, N.H., of James C. Sawyer, II. — Nathan Hayward, VI, a director of the Bell Telephone Company of Pennsylvania and chairman of the board of the American Dredging Company, died on June 21 at his home in Wayne, Pa., at the age of 72 years. He leaves a wife and five children.

Mr. Hayward came to Technology in 1895, after being graduated from Harvard University. From the time of his graduation from the Institute he was engaged in telephone research work, starting in 1898 with the Bell Telephone Company of Philadelphia, later becoming one of their construction engineers. When a number of companies merged to form the Bell Telephone Company of Pennsylvania, he was made chief engineer. In 1917 he became president of the American Dredging Company and later chairman of the board. He was a director of the American Shipyard Company, the Philadelphia and Reading Coal and Iron Company, the Philadelphia Saving Fund Society, the Philadelphia Belt Line Railroad Company, the Diamond State Telephone Company, the Fidelity-Philadelphia Trust Company, the Philadelphia Maritime Exchange, and a member of the National Association of River and Harbor Contractors. For a number of years he was president of the Franklin Institute of Philadelphia. During World War I he served as associate chief of the War Industries Board. Since 1942 he has been chairman of the Bartol Research Foundation Committee.

From the summer issue of the publication *Telephone News* of the Bell Telephone Company of Pennsylvania, we quote the following resolutions adopted at the time of Mr. Hayward's death: "His was an uncommon service to the Company. As a young man, following the completion of his engineering studies, he entered the telephone business in Pennsylvania in its pioneer days, at a time when the System was very small and the instrumentalities of service were relatively elemental. Starting as a Traffic Inspector, later becoming General Contract Agent and eventually Chief Engineer, his efforts were successively devoted to the enlargement of the public use of the service and to the development of buildings, equipment and techniques to match the great expansion of the business throughout the opening years of the century, in all of which he wrote a conspicuous record. In 1917 he retired from active participation in the management, but as a Director of the Company his affiliation with its administrative affairs was continuous from that time until his death. We have always prized his sensitive zeal for progress in the operations of the Company and his devotion to the welfare of the men and women of the organization, so many of whom he had worked with intimately, and of whose interests he was so completely aware. The integrity of the business is founded on principles such as those displayed by Mr. Hayward throughout his association with the Company."

Thus passes another of the prominent and capable members of our Class, whom we and the country can ill afford to lose, but it is an event bound to occur more frequently as the years move on and one to which we must become reconciled.

It may be of interest to '97 men to know the standing of the Class as regards sub-

scriptions to the Alumni Fund as of September 9. Our assigned quota of subscriptions was 61, and 41 men have subscribed, a percentage of 67. Our quota in amount was \$1400, and subscriptions of \$1052 have been received, a percentage of 75. Can we not better this in the closing months of the year? — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

1899

It is with the most sincere regret that I have to report the death on June 3 of William Malcolm Corse, Secretary of the Class for over 30 years. Malcolm died at his farm, Windy Hill, at Westmoreland, N.H., after an illness which began in June, 1941.

Immediately after graduation, Malcolm was employed as a chemist by the William S. Merrell Chemical Company of Cincinnati, but after a few years with that firm, he became chemist for the Detroit White Lead Works. From that time on, he found his real bent in metallurgy and gave special attention to aluminum bronze as an engineering material. He was afterwards foundry superintendent and later assistant superintendent of the Detroit Lubricator Company and in 1907 became assistant general manager of the Michigan Smelting and Refining Company of Detroit. His progress in his chosen field is evidenced by the following series of positions which he so ably held: works manager, Lumen Bearing Company, Buffalo, N.Y., 1908-1912; general manager, Empire Smelting Company, Depew, N.Y., 1913, and for the Titanium Bronze Company, Niagara Falls, N.Y., 1914-1918; manufacturing superintendent, Ohio Brass Company, Mansfield, Ohio, 1918; general manager, Monel Products Company, Bayonne, N.J., 1919-1922; with the National Research Council in Washington, D.C., 1922-1924. In 1925 Malcolm established himself as consulting metallurgist and chemical engineer with offices in Washington, which he continued until the time of his death.

During his entire career, Malcolm Corse took an active part and held office in many professional societies. He became a leading factor in promoting and organizing the American Brass Foundrymen's Association at the meeting of that organization in Philadelphia in 1907. In 1912, largely through his influence, it was decided to broaden the field of the association to cover the entire field of nonferrous metals. The British Institute of Metals had been organized shortly before, and to distinguish this new organization it was decided to use the designation American Institute of Metals. In both cases Malcolm served as secretary. After a few years of independent operation, the American Institute of Metals became affiliated with the American Institute of Mining and Metallurgical Engineers as the Institute of Metals division. He served as its secretary-treasurer, 1920 to 1925; secretary, 1926 to 1929; secretary-treasurer, 1930 to 1932; and treasurer, 1933 to 1940. Malcolm was secretary of the advisory committee on nonferrous alloys of the National Bureau of Standards for 21 years. He also served as secretary of the Society of American Military Engineers and held membership in the American Society for Testing Materials, the American Institute of Chemical Engineers, the American Chemical Society, and was one of the

first members of the Institute of Metals of London, England. He was instrumental in cementing cordial relations between various American technical societies, the Institute of Metals of Great Britain, the Engineering Academy of Stockholm, Sweden, and the Société des Alliages, France. Particularly well known in England and an "Original Member" of the Institute of Metals, he served that organization as honorary corresponding member for the United States until his death. He was honored by the institute in being the first American asked to lecture before it.

Funeral services were held at Westmoreland, with George Priest of the Class attending. Malcolm was buried in the Corse family lot in Woodlawn Cemetery in Everett, Mass., with Arthur Hamilton, Arthur Brown, and Miles and Edgar Sherrill present at the burial services. Malcolm was married in 1902 to Edith Wright Bell of Detroit. A daughter by this marriage, Margaret (Mrs. Richard S. Burr), survives him. A grandson, Malcolm Burr, entered Technology as a freshman last June. In 1924 Malcolm married Ruth Winifred Albert of Washington. Ruth plans now to live at Windy Hill, but will spend the winter months in Washington. We may all be proud of the record of our classmate, and we certainly shall miss him.

While this is being written, a notice has arrived of the sudden death, on June 3 likewise, of Edwin Francis Samuels, patent attorney and member of the firm of Samuels and Clark of Baltimore, Md. His home was in Severna Park. If it is possible for your Secretary to obtain more details, these will be given in a later issue of *The Review*.

Miles Sherrill became professor emeritus last February. I asked him to tell me how he was occupying his time. This is his reply: "My retirement last February, as professor emeritus, has not greatly modified so far my teaching activities. I continue to give my graduate course in physical chemistry, as well as one required of our senior chemists. Also, believe it or not, I am giving this year at Wellesley College a special course in physical chemistry. This one has just started, but it promises to be a most interesting and pleasant experience." No wonder you find it interesting and pleasant, Miles. You have the right idea in keeping busy and your time well occupied. When my time comes to retire, I expect to do the same. I mean, of course, to keep busy.

Miles further states that he has had the pleasure of meeting some of our classmates. He writes: "I managed to take a vacation of about two weeks this summer in Vermont. I left my wife in Montpelier, her birthplace, for a somewhat longer one. The high spot of my vacation was a delightful week-end visit at the home of George Priest in Brattleboro. When George retired some years ago, he bought a piece of land about four miles out of Brattleboro commanding a view of both the West and Connecticut Rivers. He built a house of his own design, landscaped the grounds, with a flower garden near the house, and a vegetable garden just below it. He is surrounded by congenial neighbors, some of whom reside there, as he does, both summer and winter. He calls his place East Orchard. Henry Eaton, likewise retired, bought a sizable farm below Temple Mountain in New Hampshire. He lives on this farm in

Temple during the summer months, but spends the winter months in Peterboro so as to have nearer neighbors. Fairly recently George has built a sugarhouse and with Henry's help is developing a maple sugar and sirup business. In fact they were unable to come to our 45th reunion last winter because they had to stay at home to keep the pot boiling. If in need of maple products, place your orders with George at East Orchard. Henry has quite large apple orchards." Boys, send your orders in to George for genuine maple sugar and sirup, and for apples apply to Henry. (I shall expect a commission, of course, on all orders.)

Charles A. Smith is superintendent of the roadway department of the Georgia Power Company. He is past president of the Georgia section of the American Society of Civil Engineers and of the American Transit Engineering Association and served on the wood preservation and the way and structure committees of the latter organization. He names, as among other organizations he belongs to, the Bonthead Club. Methinks this requires some explanation.

— Harry M. Keys, erstwhile sergeant in the freshman battalion, recently retired from service with the Southern Bell Telephone.

— George R. Heckle was the first visitor at the new secretarial office. He is a consulting engineer at 50 Church Street, New York City. Come again, George. — Arthur Hamilton, President of the Class, is already making plans for the 50th class reunion — nothing like starting early, Art.

Your new Secretary takes over his new duties with some trepidation, believing that some one nearer the Institute could serve to better advantage. However, if you classmates will aid by sending in class notes, I shall try my best to serve you. — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. ARTHUR H. BROWN, *Assistant Secretary*, 53 State Street, Boston 9, Mass.

1900

At Wolfboro recently, in the Carroll County *Independent* of August 11, the following was noticed: "Miss Sylvia Bowditch started back to California on Tuesday afternoon. During the month she has just spent here, her two brothers, Samuel and Charles, were able to get home, the first time Mrs. Bowditch has had her family together for nine years." — Allen called in during August to let us know that he is still busy in Washington and enjoying good health. — The Secretary has received a card from Professor Richards thanking the Class for our letter congratulating him on his hundredth birthday in August.

The *Science News-Letter* for June 24, ran the following: "Dr. Morton C. Mott-Smith, Science Service staff writer in physics, died on Friday, June 9, after an illness of several months. He was 66 years old. Although he joined the staff of Science Service less than three years ago, he completed since then two important fundamental texts in physics for use in high schools and by soldiers and adult civilians. One of these, 'Fundamentals of Electricity,' has had total printings of over 650,000, including editions for the Army and a translation into Spanish. Dr. Mott-Smith, as staff writer for Science Service, reported many of the recent important advances in physics. Born in Hawaii on Nov. 26, 1877,

Dr. Mott-Smith was graduated from the Massachusetts Institute of Technology in electrical engineering and got his Ph.D in physics, philosophy and mathematics at the University of Halle, Germany. He was professor of physics at Colby College and George Washington University. Other books by Dr. Mott-Smith include: 'This Mechanical World,' 'Heat and Its Workings,' and 'The Story of Energy' in the Appleton New World of Science series. He was co-author of a Science Service Infantry Journal book now in press: 'Fundamentals of Mechanics.' " — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston 9, Massachusetts.

1901

From A. John Eveland, who was in Course III with me, I recently received an interesting letter which I will quote in part: "The note you have about me is essentially correct, although the episode with R. Porter Campbell, Inc., was a long way back, in 1935, to be exact. It was an eight months' mine examination trip in Mexico, in some six or seven states. I have never liked the town you live in, for one reason or another, and after my mother died I pulled out to a white man's country, Nevada, and made my headquarters in Reno from 1939 to 1943. It was all consulting work and mine examinations. The venture with the Bureau of Mines was short-lived, as no old-timer used to private employment can get used to governmental methods (or lack of them); I was in San Francisco at the Russ Building merely to clean up all the interests my people had in Nevada, California, and other states, as we found we could do no profitable business under present conditions, and I pulled out with their blessing, for Mexico. I am making my headquarters, as far as mail is concerned, here at this club, as a representative of several interests hoping to find mining and other investments here. Incidentally I am starting on my 14th year in this country, off and on at various times, beginning with 1909, when I was down on the West Coast for the Lewisohns. This visit also marks the 500,000th mile or so that I have traveled on professional work, as the squirt of the family informs me, after prowling through some of my records. There is a considerable number of M.I.T. men down here in the city, both North American and Mexican, and we have hopes of getting together an active club. If you have any influence with the powers in Cambridge, have them send me a 'Register of Former Students' that is up to date (ours here is years old), and we will see what we can do about meetings." His address is: American Club, Apartado 15-Bis. Mexico, D. F., Mexico.

Ed Davis reports that he has retired from the temporary job he had with the Connecticut state defense council and is back in the office of general manager, Scovill Manufacturing Company, Waterbury, Conn. — Roland Simonds writes: "I am completing 38 years of service with the Factory Mutuals, 184 High Street, Boston, Mass., as a fire prevention engineer. Most of my time is now spent in war plants supervising fire protection and safeguarding of hazardous processes against fire and interruption of production. I have spent considerable time in the past inspecting all kinds of mills and factories throughout the United States and

Canada. I have one granddaughter 5 years old and one grandson, 10. I often meet Jim Carr who lives at 270 Highland Avenue, Winchester, Mass." (We have not had Jim's address for a long time and are very pleased to get it.)—Roland also gives us the sad news that "Leslie E. Merrill died suddenly on October 29, 1943, of heart trouble with which he had been suffering for some time. After 20 years with the Factory Mutuals he was obliged to give up active work on account of poor health."

The following facts about William M. Vermilye's career are quoted from one of several newspaper reports of his death on August 29: "William Moorhead Vermilye of Harborton, N. J., substitute industry member of the regional War Labor Board, who retired this year as vice president of the National City Bank, died . . . of a heart attack at the Hotel Hershey in Hershey, Pa., where he was attending a meeting of the board. His age was 64. Mr. Vermilye endowed the Vermilye Medal awarded for contributions to industrial management by the Franklin Institute of Pennsylvania. He was president of the Newcomen Society of England, an organization interested in the development of the history of the arts, sciences and civilization. He was a director of the American Type Founders Corporation, the Byrondun Corporation and the Virginia-Carolina Chemical Corporation. Mr. Vermilye was also chairman of the national committee of the Franklin Institute and first vice president of the Camp Fire Girls Council."

"Born in Orange, N.J., he was the son of Daniel Babbitt and Mary Cornelia Holmes Vermilye and a descendant of an old New York Dutch family. He attended Staten Island Academy and studied at Massachusetts Institute of Technology from 1897 to 1899. After serving as treasurer of the Manhasset Manufacturing Company of Providence, R.I., in 1921-22, Mr. Vermilye was executive vice president of the National Aniline and Chemical Company, New York, from 1923 to 1930 and vice president of the Thomaston (Ga.) Cotton Mills in 1931-32. He was also treasurer of the Knox Hat Company and chairman of the board of the Hat Corporation of America in 1932-33, treasurer of the Eitingon-Schild Company, New York, from 1933 to 1935 and president and chairman of the Susquehanna Silk Mills, New York, in 1936-37."

"Mr. Vermilye was a member of the Holland, St. Nicholas and Huguenot Societies, the Society of Colonial Wars, the Sons of the Revolution and the Society of the Order of the Founders and Patriots of America. His clubs included the Union League, Merchants and Recess. He leaves a widow, Mrs. Ethel Howard Simpson Vermilye; a son, William Howard Vermilye; three daughters, Mrs. Phillip E. McKenney, Mrs. William Russell Eaton and Mrs. William Allen Gilroy, Jr., and six grandchildren."

In transmitting the Montreal newspaper clippings concerning George Hyde's death on June 23, from which I quote below, Philip Moore writes: "I was in Montreal in early June and went to Ste. Agathe to see George and his wife and of course I am very glad that I did. I have had many pleasant visits with them on my annual or semiannual trips to Montreal."

The Montreal *Star* of June 24 reports: "George Taylor Hyde, B.Sc., F.R.I.B.A., one of the outstanding architects of the Dominion, who, in collaboration with his partner Prof. Percy E. Nobbs, designed many buildings of McGill University and elsewhere in Montreal, died [June 23] at the Royal Edward Laurentian Hospital, Ste. Agathe, after a year's illness. He was in his 65th year. Mr. Hyde formerly resided at 1512 Pine Avenue West, but moved to Ste. Agathe with Mrs. Hyde when he became ill a year ago. His widow is now staying with their only son and daughter-in-law, Mr. and Mrs. G. Miller Hyde. . . ."

"Mr. Hyde was born in Montreal, a son of the late George Hyde, chartered accountant of Montreal and Alison E. P. Taylor. He was educated in Montreal being a graduate of McGill University and of the Massachusetts Institute of Technology. He practiced as an architect in Pittsburgh for six years and then came to Montreal, forming the firm of Nobbs & Hyde some 35 years ago. Among the outstanding buildings which they designed were the Engineering Building, the Pathological Building of McGill University, the McGill Union, new wings to the Royal Victoria College, the Redpath Library and the Pulp and Paper Research Institute. They also designed the University Club of Montreal, of which Mr. Hyde was an original and life member; the New Birks Building, the Drummond Medical Building, as well as buildings for the University of Alberta. Many Montreal private residences were also the work of the firm. When the Dominion Government decided to go in for the construction of buildings through Wartime Housing Limited, Mr. Hyde supervised the work, traveling considerably in the course of his duties until his health broke down and he had to move to the Laurentians."

"He was a past president of the Province of Quebec Association of Architects and a Fellow of the Royal Institute of British Architects. He was a member of the Delta Upsilon Fraternity and of the Royal Montreal Curling Club. He was a communicant of the Presbyterian Church of St. Andrew and St. Paul . . . Mr. Hyde is survived by his widow, the former Mary Reppert, formerly of Jamestown, N.Y.; his son and daughter-in-law, Mr. and Mrs. G. Miller Hyde of Montreal; two grandsons, Peter and Christopher Hyde; two brothers, Lieut. Col. J. Reid Hyde, C.B.E., of New York and Brig. Walter C. Hyde, D.S.O., now on the headquarters staff of the Pacific Command, Canadian Army; one sister, Mrs. A. D. Kyle, of Montreal. . . ."

The Eastman Kodak Company sent us the following newspaper account of the life of Albert F. Sulzer, who died on August 6: "Albert F. Sulzer, vice-chairman of the board of directors of the Eastman Kodak Company, died . . . at the age of 65 after 43 years in the service of Kodak. He had been seriously ill for a number of months. . . . Mr. Sulzer engaged in various activities outside his Kodak duties until his illness prevented, among them the New York State War Council and the Rochester War Council; the Rochester Civic Music Association, of which he was a director and former vice-president; the Community Chest, of which he was a vice-president; and Mechanics Institute, of which he was secretary and a director."

"He came to Rochester in 1901, upon his graduation from the Massachusetts Institute of Technology, to enter the Eastman employ as an assistant chemist in the chemical laboratory at the Kodak Park Works. In the course of years he worked up through various positions to the managership of Kodak Park. In 1905 he was made superintendent of the chemical plant at Kodak Park. He became general superintendent of film manufacturing in 1913. He was appointed assistant manager of the Kodak Park Works in 1920 and general manager of the plant in 1929. Mr. Sulzer was elected a member of the Eastman Kodak Company's management advisory committee in 1930, a director of the company in 1932, and vice-president in charge of Kodak Park in 1934. Two years later he was appointed to the newly created position of assistant general manager of the company and was transferred to the Kodak Office to participate directly in the general management of the company. In 1941 he became general manager, succeeding Frank W. Lovejoy, and late in 1943 he was elected vice-chairman of the board."

"Mr. Sulzer was born in Chicago Dec. 22, 1878. He entered the Massachusetts Institute of Technology after attending the Chicago Manual Training School and then Purdue University for a year. He is survived by his mother, Mrs. Frederick Sulzer of Chicago; by three sisters in Chicago; and by his wife, the former Glyder Roberts of Rochester. Mr. Sulzer was a director of the Canadian Kodak Company, Ltd., a former director of the Tennessee Eastman Corporation, vice-president of the Eastman Savings & Loan Association, president of the Kodak Employees Association, a former member of the corporation of the Massachusetts Institute of Technology, a director of the Lincoln-Alliance Bank & Trust Company, and a former trustee of the Monroe County Savings Bank. Mr. Sulzer belonged to the Technology Club, the Rochester Historical Society, the Rochester Section of the American Chemical Society, the Genesee Valley Club and the Country Club of Rochester. He was a member of the National Association of Manufacturers and in 1939 was one of ten men appointed to formulate Industry's Platform for 1940. In 1942 Governor Lehman named him to the State War Council." — GUY C. PETERSON, *Secretary*, 788 Riverside Drive, New York 32, N.Y. THEODORE H. TAFT, *Assistant Secretary*, Room 3-266, M.I.T., Cambridge 39, Mass.

1902

Our classmate Charles B. Hollis died in March, and the following information is taken from a newspaper clipping furnished by Mrs. Hollis, to whom the Secretary wrote expressing his personal regrets and those of the Class: Charles Bertram Hollis, who died in Randolph, Vt., on March 17, after a year's illness, was born in Hudson, Mass., on October 16, 1879. His boyhood was spent in Marlboro, North Adams, and Natick. He was graduated as a mining engineer from the Massachusetts Institute of Technology in 1902. During summer vacation he worked for the Massachusetts State Highway Commission. Mr. Hollis was instructor at Technology for three years, then came to Randolph, where he was superintendent of the Eastern Talc Company for 19 years. Since then he has been in

the oil-burning and air-conditioning equipment business. He was a member of the Randolph University Club and Christian Brotherhood for many years and was secretary of the Chamber of Commerce, a Rotarian, and a Mason at the time of his death. He was chairman of the local rationing board as long as his health permitted. On January 25, 1904, he married Edith Marion Jones, who survives him, with their four children — Marion, wife of Lieutenant Eugene F. Moore of Seattle, Wash.; Barbara, wife of Charles DuBois Hodges of Floral Park, N.Y.; Richard of Hingham, Mass., and Catherine, who teaches in East Randolph. There are also four grandchildren, Eugene F., Jr., and Hollis Howard Moore, and Christopher Alan, and Melinda Joy Hodges.

Word has also been received of the death of three other classmates, Samuel Usher, 2nd, Charles D. Brewer, and Bayard W. Mendenhall. Usher, who had been engaged in the banking business in Boston since graduation, passed away at his home in Cambridge on July 7. Brewer died on June 3 in Duluth, where he had been for years with the Duluth Crushed Stone Company, of which he was president at the time of his death. He is survived by his wife, Mary Florence Brewer. Mendenhall died suddenly in Salt Lake City on September 16.

Announcement has been received of the marriage of Hunter's daughter, Elizabeth Sewall, to Robert Lane Scott at Princeton, N.J., on May 27. Shedd has written that the record of Patch's third grandchild urges him to write about his own family. He has four daughters, three of whom are married. They are Elizabeth, married on December 26, 1939, to an orthopedic doctor, Walter H. Hagen, now a major in England; Nancy, married on November 29, 1942, to Donald T. Shedd, a chemical engineer, Tufts '41, now a captain in meteorological service at Waco, Texas; and Jeanette, married on October 24, 1942, to Norman Norton. The grandchildren are Nancy Hagen, Richard Norman Norton, and Virginia Shedd. Shedd states that he has done a little engineering work with Stone and Webster in the last three years, as his health permitted.

There have been many changes of address: Bonnemort is now at 121 East 31st Street, New York; Alsberg is back at Peekskill; Norman Borden is a lieutenant with the Coast Guard, 1400 Custom House, Boston; Crane's address is 2712 Park Avenue, Tacoma; Mitchell has moved from New Jersey to Harwich Port, Mass., Ayer Lane, Post-office Box 515; Millar's address is Popham Hall, Scarsdale, N.Y. Greetings from the Class were sent to Professor Richards on his 100th birthday and were acknowledged most warmly. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston 16, Mass.

1903

A brief notice in a Boston paper records the passing of Herbert A. G. Locke, who died on August 6.

During the past three months two more of the Class have retired from the regular work of their professions. On completion of the academic year, Walter MacCornack retired as dean of the architectural department at the Institute. Lately, he has made addresses before societies of architects and written articles for the papers, advocating

rebuilding or remodeling our cities to eliminate slum conditions, overcrowding, lack of light, and so forth, and has advanced startling ideas about remaking Boston. Before representatives of 25 cities and towns at the Institute last spring, he advocated, among other things, sound economic tax methods and better housing conditions and different means of transportation. Certainly, much can be done along these lines, and we think he has still a job if he wants to keep at it.

George Greene wrote us: "I am retiring, as of June 1, after 41 years in the soap business. This will hardly seem like retirement to me, but rather as a change of occupation, for I am very much interested in my farm at Ashland, Mass. Although I shan't be much good as physical help, nevertheless, as 'chairman of the board,' I can keep my hand on the purse strings so that my farm personnel will have to kowtow to me. You know I also have a great interest in hunting and fishing and winter life in Florida, so that I expect to be a very busy man. The above information carries with it an urgent invitation for any of my classmates to visit me at Magunco Orchards, High Street, Ashland." We hope George will thoroughly enjoy life for years to come. Serving as Class Agent for the Alumni Fund may prove to be another interest for him.

The foregoing reminds us that the Class has reached only 75 per cent of its quota with the help of 72 per cent of its members subscribing. It seems as though we should do better than this. Have you sent in yours? We urge you to do what you can, however small or great it may be. Some other classes in our time have shown a much better record. Won't you help George out by doing your part?

The following passage is quoted from the *Mining Journal* of August 15: "Dr. Gerald F. Loughlin, for nine years chief geologist of the Geological Survey, United States Department of the Interior, has accepted an appointment to the newly created position of special scientist in the survey. He has been relieved of administrative duties so that he may devote his efforts to research on special problems in the field of economic geology. . . . 'Dr. Loughlin has recently completed 27 years of administrative service in the Geological Survey,' said Director William E. Wrather of the Geological Survey. 'He has occupied successively the positions of geologist in charge of the Nonmetallic Section and of the Metallic Section of the Division of Mineral Resources; geologist in charge of that division; geologist in charge, Section of Metaliferous Deposits; and chief geologist. In addition to, or in spite of, these administrative duties, he has become recognized as one of the leading economic geologists of the United States. The increasing responsibilities placed upon the chief geologist during the past few years have, however, been carried out only at the expense of his own scientific work, although at no time has there been greater need for the intensive application of the capabilities such as Dr. Loughlin possesses in the search for new ore deposits. I have therefore acquiesced in the relief of Dr. Loughlin as chief geologist in order that he may devote himself, as special scientist in the Geologic Branch, to researches in the fields in which he is an

outstanding authority. He will also serve as consultant and adviser to the director and chief geologist.'" — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston 9, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 441 Stuart Street, Boston 16, Mass.

1904

A belated bit of news informs us that the American Institute of Mining and Metallurgical Engineers, at the annual banquet held in New York City on last February 23, awarded the W. L. Saunders Medal for 1944 to George B. Harrington, President of the Chicago, Wilmington and Franklin Coal Company, "for distinguished achievement in mining of coal, as shown, especially, in his leadership of a great coal company, in which organization efficient engineering, design, and management have been so combined that it stands pre-eminent in the mining industry."

This year marked the 40th anniversary of the graduation of our Class, and it was deeply regretted by all that the existing conditions rendered it impossible to hold a reunion such as we have had in past years. Two functions, however, were offered in celebration, the first at the Cosmos Club, Washington, D.C., on June 7 under the leadership of Mert Emerson. He writes that he notified 16 classmates and was rewarded by the appearance of eight. Those who joined him were G. Neville Wheat, A. M. Holcombe, Harry H. Groves, George H. Shaw, F. W. Milliken, Henry L. Lyman, and William McEntee. They had a pleasant evening together discussing those subjects of most interest at such times. George Shaw brought a picture of the Class taken in our junior year on the steps of the Natural History Museum, which led to much discussion of classmates who were recognized.

On June 27 the Boston group held a dinner at the Engineers Club attended by 11 classmates. Many enjoyable reminiscences and anecdotes were told, covering the experiences of 40 years. The highlight of the evening was provided by Don Galusha, who discussed at length the characteristics and idiosyncrasies of all present and some who were not. It was really a remarkable performance. Those present were Gene Russell, Gus Munster, Ed Parker, Dwight Fellows, Dave Sutton, Jack Draper, Dan Comstock, Tommy Rockwood, Harry Kendall, Don Galusha, and Stevens.

Austin Hoy had planned to attend the dinner, his first appearance at a class function since graduation. Much saddened by the following letter explaining his absence, we all signed a letter of sympathy for him: "I shall have to cancel my reservation for the 40th reunion dinner because of the tragic news received last evening of the death of my elder son, Dion A. Hoy, a lieutenant in the Army Air Forces, in a plane crash in Texas in which his commanding officer Colonel Thurlow, head of the instrument and navigation unit in the equipment laboratory at Wright Field, was also killed. Colonel Thurlow was a highly experienced pilot of long standing. Fortunately, we have left Dion's identical twin brother, Trevor, who is in the same work. Both boys volunteered in the middle of their third year at Williams, at an age when we had to give our consent as parents; both have taught navigation, their chosen

branch, although both obtained student flying licenses at Bridgeport before the war and could probably have been pilots, had they chosen. In separate planes both have flown overseas this year to Africa, Italy, and England, on professional errands connected with the development of navigational instruments. Dion was engaged in this work with his colonel when death overtook him, and we know he died as he would have liked — on duty.

"I am sorry to have to introduce such a somber note at this time and suggest that you omit reference to my loss at the coming dinner, as there is sufficient sadness in most homes now. And I still may hope that Trevor, whose rank is the same, will go to Technology after the war, although he was by choice well advanced for an undergraduate in our old favorites, mathematics and physics; he was taking senior work at the time of Pearl Harbor. Probably there were not many air-minded youngsters who had gone so far, which may account for our boys being able to contribute something worth while to the war effort, even if mostly far from the front."

I have been notified of the deaths of a number of classmates: Henry Lage died at Rio de Janeiro, Brazil, on July 2, 1941; Clarence A. Neal died on June 29, 1943; Edward B. Rich died at Pelham, N.Y., on May 9, 1943; Robert A. Hubbard died at Walpole, N.H., on October 14, 1943; Lewis C. Clarke died at Cambridge, Mass., on November 18, 1943; Ross R. Schulte died on December 24, 1943; George W. Sanborn died at Hyde Park, Mass., on last January 13.

Selskar M. Gunn, Vice-president of the Rockefeller Foundation at New York, died at his home in Newtown, Conn., on August 2 after an illness of several months. During a period of many years Gunn had traveled all over the world in the work of the Rockefeller Foundation and was an outstanding leader in the struggle for better health conditions everywhere. "He was in charge of the foundation's Paris office when the Nazis overran France and left Paris six days before the Germans marched in. On his return to this country he went to Washington, D.C., where he made a public health survey and engaged in the promotion of a rehabilitation program for countries taken over by the Germans. He leaves his wife, two sisters, Lady Webb, wife of Sir Henry Webb of London, and Mrs. Frank Howard, also of London; and one brother, Brendon Gunn of London."

Rufus C. Reed died on August 27 in Cambridge, Mass., where he had been a patient at the Cambridge Hospital for a short time. Reed had been on the instructing staff at the Institute since his graduation. — HENRY W. STEVENS, *Secretary*, 1960 Commonwealth Avenue, Brighton 35, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, Apartment 403, 3024 Tilden Street, Northwest, Washington, D.C.

1905

On the morning of July 12, Elmer Wiggins, V, announced by telephone his arrival in Boston and suggested an informal lunch, which your Secretary endeavored to arrange. Most of our big business executives, however, were tied up in conference, or otherwise, with the result that four of the faithful assembled at the Chamber of

Commerce, and for lack of quorum executed no official class business. Present besides Wiggins and the Secretary were Bert Files, I, and Sid Strickland, IV. Bert, head man with Property Management Corporation, reported "nothing to do" because the United States Army had taken all vacant office space, leaving him nothing but post-war worries. Sid reports little architecting to be done, but he is busy with his work with the State Housing Commission.

Wig was generally speaking, but as our stenographer was not present, we asked him to put his story on paper, which he has done as follows: "As I recall it, I told you at our last meeting in Boston that we had been operating a Primary Army Training School for the United States Army Air Forces at Camden, Ark., for the past two years. This required the purchasing or renting of lands and the building of three airports, together with the building of hangars, ground school, classrooms, administration building, flight operations office, mess halls, infirmaries, Link Trainer building, and so on. The school had a capacity of approximately 360 cadets at a time, and we had operated a little less than two years before the Army began to cut down on their training schools, and our school was one of the second group to close — last April. We had the satisfaction, however, of knowing that it was one of the best in the southwest section of the country, as we stood first in most departments nearly every month of our operation and had a much higher percentage graduated, not only from our school but on through basic training, than any of the other schools. We also had a wonderful safety record and on numerous occasions have received high praise from the heads of the department in Fort Worth and Washington. While the school was in operation, we trained between two and three thousand pilots. Many of them have put in some wonderful performances over Europe and the Pacific Islands since they have been overseas, and we feel proud to have done our little part toward winning this war."

"While the writer was spending most of his time at this Army Training School as general manager, our old company continued operations under government contracts training War Training Service cadets at Concord, N.H., and at Columbia, Mo. These government contracts have all been finished, and we are still operating the Columbia base as private business only. Concord is closed up entirely, and our aviation activities at Norwood consist merely of charter business and Link Trainer and instrument instructions, but we have nearly 100 employees working on sub-contracts, building helicopter parts for Sikorsky. During the past two years we have built a great many parts for the 15-man glider. We still own our hangar at the Boston Airport and expect to open it within the near future for our own business and also to accommodate some of the air lines that will start new operations at Boston. Flying in general on the East Coast is still restricted, but we are in hopes that in the not too distant future it will open up again so that we may start giving instruction and do general charter work once more from our different bases in the East." This is the kind of story we should be receiving from other class members, who have undoubt-

edly been as closely connected with the war effort. Please help the poor Secretary, by effusing as Wig has done.

To prove that we have one more assisting secretary, we quote from a letter of Herman T. Gammons, II: "I do not think that I have any personal items which would be of much interest to class members. I am still here in Boston practicing patent law, as I have been for more than 20 years. I have now been a member of this firm, Roberts, Cushman and Grover, for 10 years or more. It seems to be the custom now to boast of one's grandchildren. I cannot claim to hold the prize, as I have only six. My oldest son, Robert, M.I.T.'33, is a lieutenant (junior grade) in the Naval Reserve and has been assigned to the Adjutant General's office in Washington. He married a Washington girl and they have one child, a little girl. My youngest son, M.I.T.'35, also married a girl from Washington and is now in the legal department of the Remington Arms Company at Bridgeport. He has two children, a girl and a boy. My daughter, Dorothy, married Thatcher Fisk, M.I.T.'39, who is employed in the legal department of the Kendall Company of Walpole. They have three children, two boys and a girl. The little boy will celebrate his seventh birthday in about a week."

Walter L. Whittemore, III, who is with the United States Engineers in the office at Little Rock, Ark., writes that his job has been connected with dam design work for Fort Supply and Great Salt Plains in Oklahoma, and for the Norfolk, Blue Mountain, Clearwater, and Nimrod Dams in Arkansas. At the present time he is working on Bull Shoals and Table Rock Dams in Arkansas and Missouri, which are expected to be under contract at the close of the present war. These last two dams, as well as Norfolk, have large hydro-electric power plants in connection with them, being dual purpose projects for both flood control and utilization of the waters of the White River. His son, Wendell L. Whittemore, a lieutenant in the United States Navy, is a doctor in the South Pacific area, being stationed in a hospital on Tulagi Island near Guadalcanal, where he has been for the past 18 months. One of his sons-in-law is also a doctor and was pretty badly shaken up at Salerno Beach; he was hospitalized in this country at the Walter Reed Hospital and is now stationed in an Army hospital at Macon, Ga. Walter is due for retirement three years hence.

What a fine job Grafton B. Perkins, V, is doing as class agent in the Alumni Fund campaign! The last release from headquarters on August 31 shows our percentage of contributors as 85 and percentage of amount 83, in 11th and 7th places, respectively. That isn't good enough for '05. If your name isn't on the list, how about sending Perk (in care of Lever Brothers, Cambridge, Mass.) your contribution now?

The hardest job your Secretary has is to chronicle deaths and particularly this month, as the Class has lost one of its most popular members, one of the swellest fellows who ever lived, George Bayard Jones, II. George died suddenly while on his vacation on July 11. We have had notices and clippings from the Technology Club of Chicago, from his son, Bayard, and from Frank Payne, XIII. There is no need of telling you that during his days at the

Institute George was a member of the Musical Clubs, was in the cast of the Tech Shows, *Applied Mechanics* and *A Scientific King*, was vice-president of the Class in 1902-1903, associate editor of "Technique," class prophet, a member of Technique Electoral Committee, of the Institute Committee, 1904-1905, of the Class Day Committee, Senior Portfolio, of Walker Club, Missouri Club, and Mechanical Engineering Society. Your "Ten Year Book" will tell you of George's life from 1905 to 1915. He was a member of the firm of nationally-known patent attorneys, Critten, Wiles, Davies, Hirsch and Dawson of Chicago for many years prior to his death, and Hub Kenway is authority for the statement that George was very highly respected in patent attorney circles in Chicago. We like especially Frank Payne's comment: "He was a real friend and I miss him. A few days before he died, I believe, I was in his office, and he told me he was allowed to smoke one cigar at lunch and one at dinner. All this year George looked very pale, and I noted the change coming over him." George's autobiography for the "Ten Year Book" ended: "In general I find that my interest in Tech men and Tech affairs has grown greatly rather than diminished in ten or more years, and I have derived much genuine enjoyment from the various Tech reunions, having attended all of the big affairs in Boston, New York, Chicago and Pittsburgh, from the five years' celebration in 1904, to date, with the single exception of the 1909 reunion. I count my M.I.T. backing and friendships as my greatest asset in every way." George leaves a widow, whom those at the reunion well remember, two sons, and one daughter, all married.

Walter S. Brown, III, died at Franklin, N.J., on July 3. A letter to his widow expressing the sympathy of the Class and especially of the "miners" brought an answer which tells a bit of his later life. For 25 years, with a brief interlude, Walter was with the New Jersey Zinc Company, first in Palmerton, Pa., and later in their New York office. From there he was sent to Franklin, N.J., a Zinc Company town, as executive vice-president of the Sussex County Trust Company. Three years later he was made president and remained in that position up to his death. Death was sudden, from cerebral hemorrhage. He leaves a widow only, now living at 380 Pearl Street, Burlington, Vt. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston 10, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 71 Newbury Street, Boston 16, Mass.

1907

On last July 15 I received a letter dated on July 4 in India from our extremely busy but ever loyal classmate, Stuart C. Godfrey, a brigadier general whose address is A.P.O. 671, New York City. The letter is too long to reproduce entirely in these notes, but I quote parts of it: "Seven months have passed quickly in this most distant and strangest of theaters, China-Burma-India. It is still a side show compared with the big show in Europe, but a fascinating one at that with far-reaching possibilities. In the air the Japanese are no match for us, and on the ground it has not been necessary to take their invasion of India too

seriously. As air engineer I have organized and supervised for the Army Air Forces a remarkable airdrome building program. Here in India materials are available for concrete, and aviation engineers with fine equipment are now speeding up the leisurely ways of the East. But in China, with nothing but rock from the river, and many thousands of Chinese laborers working with hand tools, we can actually outstrip the work of our troops in India. I have seen as many as 90,000 Chinese on one airfield swarming like ants, effectively organized, cheerful despite their one desire to get back to the farm. . . . I have been to one of our airdromes-in-a-hurry, far behind Japanese lines, which was built by one of my airborne engineer companies. To fly at night in gliders to a clearing in the woods, bringing in men and light equipment, to build a field ready the next night to receive 100 transport planes — this was a unique achievement! . . . I have enjoyed working with Stratemeyer, with K. B. Wolfe who commands the big new bombers, and with Chennault in China who has done so much with so little, and I have seen something of Stilwell at his forward command post. . . . India has its fascination — a country wild and barbaric but splendid — a people sensitive and intelligent, subdued and pitifully poor, but with stirrings of nationalism that will not be denied. Yet I turn with greater admiration to China and the Chinese, and recall the look of pride with which Madame Sun Yat-sen spoke to me of the spirit of her people. My family are all well. Dot [his wife] is busier than I am, with her many musical activities. Pearce is in the air cadets. Chris, the husband of Hope [his daughter], is in the Merchant Marine and had dinner with me here while in port. Finally, Bob, who at Wright Field has had much to do with developing the fire control for our big new bombers, hopes to go overseas in one of them. . . ."

On July 5, one day after Stuart wrote this letter, another man in another part of the world far removed from Boston, was thinking of '07 and M.I.T., for on that date Max Greenburg, who is the manager of the branch of the British Thomson-Houston Company, Ltd., at Tel Aviv, Palestine, wrote to Lawrie Allen, sending his check for the Alumni Fund. The letter was kindly sent to me by Mrs. Allen. In passing, let me note that ever since the Fund began, Max has contributed regularly in spite of the many difficulties of exchange and the long time it has taken for mail to make the journey. He writes that his daughter Miriam, who was graduated from Boston University and joined the Women's Army Corps, was married in Boston on June 3 to a lieutenant in the United States Navy who is serving on a submarine. His son Carl is with the weather squadron, stationed at Maiduguri in Nigeria, and the older son is in England in the research department of the British Thomson-Houston Company. The letter continues: "Mrs. Greenburg continues to keep very busy with the Services Club, which is quite a large institution. The British military authorities have added several buildings with entertainment center, comforts and conveniences, including bathing, as the club is on the sea front. The most important work is home hospitality, and thousands

of men are invited to private homes for tea and meals. The Americans have a post near the outskirts of the city and men from the Persian Gulf to the west coast of Africa come here on leave. The Holy Land does have some drawing power for them. Besides, Tel Aviv is a modern city, quite like any western seashore town, with nearly a quarter of a million people. . . ."

During the summer I received two letters from Harold Farrington, president of the Standard Stoker Company, Inc., 350 Madison Avenue, New York, enclosing programs used in connection with the ceremonies when the company was awarded the Army-Navy "E" and when it received the National Security Award for outstanding efficiency in protection of its plant against the risks of sabotage, air raids, fire, and accidents. Harold's company manufactures about 90 per cent of the mechanical stokers used on coal-burning locomotives in the United States.

In the Boston *Herald* of August 6 was a two-column article telling of the wonderful miracles of salvage work that are daily being performed in Canada by the overhaul and repair division of the Department of Munitions and Supply, of which our classmate Clarence Howe is minister. But note this: The director of this overhaul division is another '07 man, Arthur Tylee. Arthur retired from his machinery business in 1931 and spent his summers in Toronto and his winters in Florida until the war broke out. Now he is working harder than ever, traveling across Canada from one aircraft plant to another and supervising over 100 central aircraft repair factories, where about 18,000 workers are employed, and where an average of about 525 planes and 1,200 engines per month are turned out.

On July 20 occurred the death of Quincy P. Emery, XIII. Most of his life was devoted to the wholesale paper business. For many years he operated Quincy P. Emery, Inc., in New York City, and more recently was vice-president of Stevens-Nelson Paper Corporation in the same city. He was a director of the Advertising Club of New York and of the American Institute of Graphic Arts. His home was in Old Greenwich, Conn.

In the Boston *Herald* of June 30 was a picture of the recipients of honorary degrees at Harvard University on the preceding day. Included in the group was Emory Leon Chaffee, Rumford professor of physics at Harvard, who was awarded the degree of doctor of science. — Flint C. Elder, director of research of the American Steel and Wire Company, became one of the directors of the company last July. — Bob Rand is now a lieutenant commander and may be addressed, Naval Air Station 28, Care of Fleet Post Office, San Francisco, Calif. — Emory S. Land, of our Class, chairman of the United States Maritime Commission, was promoted from rear admiral to vice admiral during the past summer, according to the *Army and Navy Journal*. — William S. Lucey's address is again Hoquiam, Wash., with Rayonier, Inc. — Nancy Jane Willcomb, daughter of Roland H. Willcomb, enlisted in the Waves last July, according to word thoughtfully sent to me by Carl Trauerman. Her father is with the State Highway Department, Helena, Mont.

On my nomination the executive committee of the Alumni Association has

elected George A. Crane of 80 Federal Street, Boston, to replace Lawrie Allen as the '07 representative on the Alumni Council. Charles E. Allen of Spencer, Mass., will take over Lawrie's work as Class Agent for the Alumni Fund during the remainder of this year. — You men of our Class have done fine work this year in your contributions to the Fund. By the 31st of August 89 per cent of our class quota as to the number of contributors had given, and 94 per cent of our quota as to amount had been subscribed. Only 13 more givers and \$156 in money were needed to give us 100 per cent in both particulars. Some of you men who receive this issue of *The Review* had not sent in your contributions up to August 31. If that condition still applies to you now, as you read this, won't you mail your check at once? We must reach and exceed our quotas. — BRYANT NICHOLS, Secretary, 23 Leland Road, Whitinsville, Mass. HAROLD S. WILSON, Assistant Secretary, Commonwealth Shoe and Leather Company, Whitman, Mass.

1908

The first get-together dinner of the coming season will be held at the University Club at 40 Trinity Place in Boston on November 14, at 6:00 P.M. We expect to show some good kodachromes and colored movies. The usual notices will be mailed early in November. Make your plans to come and renew acquaintances with the gang.

There was a very interesting story in the *Saturday Evening Post* of August 19 about Bill Taylor's company, the Corning Glass Works. Bill is director of glass technology and has been responsible for many developments. — Mat Porosky, President of the Eagle Signal Corporation, Moline, Ill., was honored when his company was awarded the Army and Navy "E" last July. — Edgar Williams is the recipient of the Royal Order of Vasa, Knight, First Class, which is awarded for merit by the Swedish Government. This decoration corresponds to the Order of the British Empire and was bestowed in recognition of Williams' understanding and appreciation of Swedish architecture. The presentation was made last spring by the Swedish consul general in New York on behalf of King Gustaf V of Sweden.

The Miami Daily News of May 24 carried an interesting article about Willard F. Rockwell. It said, in part: "Willard F. Rockwell, Pittsburgh industrialist who conceived what has become known as the 'Rockwell Plan,' . . . made known, exclusively to *The Miami Daily News*, the details of the plan. Rockwell revealed the details at his winter home, 5565 Pinetree Drive, Miami Beach, as he prepared to leave . . . for Pittsburgh. Until now, only members of congressional committees dealing with the problem of postwar unemployment and leaders of the AFL and CIO had been acquainted with the provisions. Rockwell, chairman of the boards of Timken-Detroit Axle, Standard Steel Spring and Hupp Motors, was unwilling to release them until the congressmen and labor leaders had been given an opportunity to study the plan. (1) That re-negotiation of war contracts, paring profits, be placed on a basis to permit industrial firms to build up cash reserves earmarked for payrolls during the difficult period of postwar conver-

sion. (2) That the problem of surplus raw materials and manufactured goods be studied with a view of cutting surplus, lest it create further postwar unemployment. (3) That no merchant ships or machinery be given away or otherwise disposed of to other nations, enabling them to undersell American manufacturers in world markets. (4) That the tariff problem be carefully studied from all angles and proper legislation adopted to protect American labor and industries. (5) That provision be made to return migratory workers from war centers to their pre-war locations. A graduate of Massachusetts Institute of Technology, Rockwell served as a colonel in the motor transport service of the army in World War I. Until early this year, he was director of shipbuilding for the Maritime Commission. Despite his many activities, he still has time for hobbies. One of them is raising species of cacti, in which he is aided and abetted by Mrs. Rockwell. Another is candid camera photography, in which Mrs. Rockwell also collaborates. 'But our real hobby,' he observed, as he pointed to a family group picture on the wall, 'is children.' The picture showed the Rockwells; their four daughters and a son (now an army lieutenant), their respective mates and 12 grandchildren."

The following letter to Cookie from Waldo Morrison will be of interest: "According to the class notes, your appeal for donations has had an effect on hardened hearts. My own delay in mailing a check was occasioned by the illness and final passing away of my wife, Elizabeth M. (Rand) Morrison, Smith 1915, on June 5. I am enclosing check for \$13.50 to match Charles McHenry Steese with whom I had many pleasant conversations on the occasion of our 30th reunion, when he met Harold Weeks and me at Providence and drove us over to Oyster Harbors. I am missing a good deal of Technology fellowship in not being in Boston, but read the notes with pleasure." — H. Ross Callaway and Mrs. Callaway have announced the marriage of Callaway's daughter, Nadine Francoise, to Allen Francis Olinger, a midshipman, on June 3.

George Glover writes: "Harry Rapelye was transferred from the New York office of the Continental Can Company to become manager of the Washington, D.C., office; address, 1054 Munsey Building, Washington, D.C. I have seen Rap two or three times since the change, and I do not think he is so well pleased with it, but nevertheless they have to have a man of Rap's type in Washington for contacts with all these various government people. My wife and I are expecting to spend the first two weeks in August at Kennebunkport, Maine, and no doubt I shall get down to Boston once in a while, and I hope to see you at that time." — Claude O. Brown has returned from Mobile, Ala., to 691 Haxton Avenue, Orange, N.J. — Don't forget the class dinner on November 14. How about sending in some news? — H. LESTON CARTER, Secretary, 60 Batterymarch, Boston 10, Mass.

1909

Twenty-one of us, including members of families, attended the impromptu reunion held at the Griswold Hotel, New London, over the week end of June 9 to 11. Those

present were as follows: Phil Chase, Chet Dawes, Dale Ellis, George Haynes, Delos and Mrs. Haynes, Francis Loud, Johnny and Mrs. Nickerson, Eleanor and Barbara Nickerson, Art and Mrs. Shaw, Laurence Shaw, Henry and Mrs. Spencer, Mex and Mrs. Weill, Harry Whittaker, Johnny Willard, and Paul Wiswall.

A large proportion arrived Friday afternoon and evening and remained through Sunday, some remaining until Monday morning. Although Johnny Willard had predicted that wheel-chairs would be necessary, this was found to be not strictly true; but on the other hand the near-by golf course was conspicuous for the absence of '09 men. The majority clung to the hotel piazza or sat on the rocks on the near-by shore of the Thames River and watched the numerous submarines and other craft which were continually plying up and down. Although there had been no rain in New England for the past four or five weeks, the reunion did bring heavy rains Saturday afternoon and evening and won the gratitude of the farmers. On Saturday evening Chet Dawes showed colored motion pictures of boating in Maine and of a trip to California and the West which included Bryce and Zion Canyons, Yellowstone and Glacier National Parks, and other points of interest. When the weather cleared on Sunday, the swimming pool was the center of attraction. The greatest pleasure, however, was the meeting of old friends and swapping yarns.

As has been reported earlier, Johnny Nickerson is now management consultant for the War Production Board and is living at Niantic, only a short distance from New London. His daughter Eleanor is connected with radio station WDRC in Hartford, and Barbara is at the Pratt and Whitney Company in the same city. Phil Chase had been attending an Alumni Council meeting at Dartmouth and stopped on his way back to Philadelphia.

The Review Secretary announces his marriage on June 17 to Miss Muriel Beattie, a graduate of the University of Western Ontario. Many congratulations have been received from class members, and both are highly appreciative of the records, Handel's *Messiah* and Cesar Franck's *D Minor Symphony*, given jointly by those attending the reunion. While attending the summer technical meeting of the American Institute of Electrical Engineers in the latter part of June, Chet and Mrs. Dawes were the guests of Delos and Mrs. Haynes, who showed them many points of interest in the city, including the Lindbergh trophies and the famous St. Louis Zoo.

President Gram reports as follows: "Our plant, the Animal Trap Company at Lititz, Pa., was the first in this locality to convert over to war work for which it was later awarded the Army-Navy "E" and Star for large scale production of bullet cores and other screw machine products, army cots, and so on. — Garnett A. Joslin, III, mining engineer, 311 Financial Center Building, Los Angeles 14, Calif., recently returned to the United States from a professional trip to Honduras, Central America. Garnett is chairman of the mining committee and a director of the Los Angeles Chamber of Commerce.

Harry Webb, III, wrote in August that at the age of nearly 58 years, and after work-

ing ten hours a day, seven days a week, for nearly three years, on a government construction job, he was enjoying a little rest at the Webb cottage, Monteagle, Tenn., but that he was planning to go back on September 1 to his old residence at 1745 Linden Avenue, Memphis, Tenn., and resume his normal life there. During the past winter when Webb was working at Attalla, Ala., on the building of Camp Sibert, he and Mrs. Webb saw a lot of his classmate, Lynn Loomis, III, when they would gather together around a grate fire in the house where the Webbs were living and reminisce over their school days. At that time Loomis was a major in the Chemical Warfare Service and had been transferred to Attalla in October of last year. Webb had also been connected with the Chemical Warfare Service, but only in a civilian capacity, since January, 1942, first at the Huntsville Arsenal, as chief inspector in the building of their igloos along the Tennessee River, and since August, 1942, in charge in the field for Converse and Polk, the firm having the construction of buildings at Sibert. Webb finished the construction program for the Army on July 1 and since then has been taking life rather easy.

All of us have noted from news dispatches that Brad Dewey, X, has brought the production of synthetic rubber up to the amount specified by the War Production Board, and the job having been well done, he is retiring as director on October 1. Another honor, also, has come to Brad. The American section of the Society of Chemical Industry has awarded the Chemical Industry Medal to Colonel Dewey in recognition of "his work in colloid chemistry, especially pertaining to rubber latex, and his accomplishment in administering the synthetic rubber program during a critical war period."

The Review Secretary has received numerous clippings, including some from Paul, most of which are letters to the papers of New York City and other papers throughout the state, all urging the nomination of Tom Desmond for United States senator. For example, the following is typical: "Desmond is a former successful engineer and businessman, a graduate of both Harvard and the Massachusetts Institute of Technology, who has traveled widely throughout the world. He would be well qualified to render distinguished service at Washington as he has at Albany." The Class certainly agrees that Tom would make an A 1 United States senator and he has the good wishes of every one of us.

We regret that two more classmates, Henry Sherman, I, and Charles B. Fletcher, II, have passed away. Both were members of the '09 football team, and Henry pitched on the baseball team. Word of Henry's death was received from the Alumni Office with no dates or other data given. There are no entries in the Secretary's records since June 2, 1927, when his address was given as Balboa, Calif. Henry's home was in Pasadena, Calif. He prepared at Exeter and was secretary and treasurer of the Exeter Club in his third year, and was also a member of the Round Table. He played left guard on the football team.

Charlie Fletcher's death occurred on May 28 at Marietta, Ohio. He was an official of the Marietta Chair Company and is survived by his widow, Mrs. Loretta Fletcher,

and two children, Charles Barrows Fletcher, Jr., and Florence Matthews Fletcher. Charlie's original home was at Indianapolis, Ind., and he was the great-grandson of Calvin Fletcher, Indiana pioneer. He prepared at Asheville School. Those who knew the football team remember Charlie as the blond, aggressive end who had an uncanny habit of going in under the interference and getting his man. He was also a member of the Mechanical Engineering Society. Incidentally, Matthews Fletcher, who also came from Indianapolis and played tackle, and was, as the Secretary recalls, Charlie's brother, died on April 18, 1939. — PAUL M. WISWALL, *Secretary*, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries*: MAURICE R. SCHARFF, 3860 Rodman Street, Northwest, Washington 16, D.C.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

1910

How many of us, I wonder, could stand up to the rigors of active duty as Frank Bell has? It was extremely pleasant to receive the following letter from him sometime in August: "As the last issue of The Review to reach me contained no 1910 notes, I thought I would drop you this note. Since last fall I have been busy somewhere in England on construction and other military operations with my regiment, which I have had the honor to activate, train, and command for some 16 months. For civilian benefit, an engineer general service regiment is what the name implies — its primary mission being construction and military engineering operations and its secondary mission, infantry combat. We feel we are mighty good at either. At present I am starting a new mission in command of a group of two regiments, mine and one other. The job is intensive, tough, but most interesting — which is about all I can say. My oldest boy, Frank, is a captain and marine aviator, now in the Pacific theater. My youngest boy, Edwin, was called to active duty while a sophomore at Technology and is now a second lieutenant in the Corps of Engineers, with a topographical battalion. He states that Professor Babcock's working him over at M.I.T. helped him get the job. Professor, if you see this — thanks. Frank married V. Z. Beall's daughter. Interesting, as Zanie and I ran around together at the Institute. For an old codger, as Hal Manson called me, I seem to hold up to punishment well and can still dodge robots."

It is with deep sorrow that I report the passing of Raymond L. Jones on April 5. At the time of his death he was superintendent of the Empire Zinc Company, Cañon City, Colo., a division of the New Jersey Zinc Company. He was a native of Barnstable, Mass., born there in 1887, and received his B.S. degree in 1910 from Technology. When he left college, he became a mining engineer with the Tennessee Copper Company for about two years before joining the staff of the Virginia Carolina Chemical Corporation at Villa Rica, Ga., as superintendent of mines. He joined the staff of the New Jersey Zinc Company in 1915, and worked with that company in the zinc plant at Palmerton, Pa., reaching a responsible position as department chief

of the zinc oxide department. In 1925 the company sent him west as an official of its subsidiary, the Empire Zinc Company. He was superintendent of mining operations at Gilman, Colo., and of smelting operations at Cañon City.

I have heard indirectly that, while stationed in New York City, J. Theodore Whitney, a lieutenant colonel in the Army Service Forces, received hurry orders to prepare for overseas duty. — I see Samson Cohen, a lieutenant colonel in the Corps of Engineers, occasionally, as he is stationed at the First Service Command in Boston. Sam's son has caught up with his father in rank and is with the Marine Corps. — Luther Davis, who is biologist for Haffenreffer and Company, called me up not so long ago in regard to information about matters pertaining to his son, who is in the Army. If he had requested information on renegotiation of contracts, I might have given an answer. — I had missed seeing Al Huckins for several weeks and during the late summer met him on Devonshire Street. Al had been in the South on business.

It had been a long time since I had seen or heard of Herb Reynolds, but during the summer I received the following letter from him: "A few months ago I changed positions and am now with C. C. Bradley and Son, Inc., in Syracuse as production manager of the Syracuse plant, and production co-ordinator of our three plants located in Syracuse, Cortland, and Homer, N.Y. Like almost everyone else, we are 100 per cent in war work, ranging from radar to mine fuses. I became a grandfather for the first time about a year and a half ago with the birth of a son to my daughter, and for the second time about three months ago with the birth of a son to my oldest son. He is in England as pilot of a P-51 Mustang fighter bomber and, from all reports, took a very active part on D-day. My son-in-law is a pilot instructor in B-24 bombers at Denver, Colo., and my younger son who hopes to be a Navy pilot, is now stationed at Colgate University taking his naval flight preparatory course. I don't know of any classmates here in town, but do come in contact with a number of Tech men who are located here, even though our local alumni club is far from active. If we meet twice a year, we are doing pretty well. Remember me to any of the old gang whom you happen to run across. Has anything ever been heard from Ernest Redman of Course II, who was apparently lost track of a number of years ago?"

While I was in Chicago this summer I called Louis French in Milwaukee. He is now a grandfather several times over, enjoying life and using his spare time designing fuel injectors for diesel engines. — John M. Gray astounded me a few weeks ago. He is running for state representative on the Republican ticket from Salem, Mass., and John was such a staunch Democrat. — I see Allen Curtis very regularly on his way to the North Station while I am on my way to the South Station. Al's son is a captain in the Marine Corps, stationed in the South Pacific. — My civilian chief in the Renegotiation of Contracts, John Wentworth, who is now on leave of absence from his firm of Metcalf and Eddy, was visited by Edmund Kiely. Ed appeared to be taking life in rather a leisurely manner.

H. N. Crichton is with the United States Engineers, New England Division, and has been transferred from the Cape Cod Canal office to the Boston District office, where he is in charge of the river and harbor work. — Harold R. Perry and Mrs. Perry announce the marriage of their daughter Prudence to John Dennis Kelleher, a captain in the Army, on June 16 at Fort Benning, Ga. — Yuan Tze Tsai's son, Donald Tsai, entered the Institute in July to study aeronautical engineering. He was graduated from Pomona College before coming to the Institute. — As for myself, I am suffering from the hardships of army life among the chair-borne engineers: I have a futile desire to share the excitement — excitement such as my son must be having as navigator of a B-24 in the European theater of operations. — HERBERT S. CLEVERDON, *Secretary*, 117 Grant Avenue, Newton Center 59, Mass.

1911

Merrily we roll along, in the van once more in Alumni Fund IV, with the best percentage of contributors since those high-stepping classes in the first seven years of the Gay Nineties. But, aye, there's the rub, 1912 is five percentage points ahead of us on percentage of quota, with an average contribution \$4.33 ahead of our \$16.67 average. They can't do that to us! Action, mates, action!

Here's a mighty tough break for a classmate. Ralph Sawyer, XII, wrote me in mid-August that he was still connected with the Portsmouth Navy Yard at Kittery, Maine, and said: "I have nothing special to report, except that I have recently lost a leg to the war effort and another man's carelessness, and so am loafing around awaiting the permanent leg. I shall probably return to work between October 1 and 10, with no serious degree of disability. That will be the sixth anniversary of my coming to this job at the Navy Yard — the longest job I've ever found, but not permanent, only a duration-plus-six-months appointment."

Add to the 1911 grandfathers: Phil Caldwell, I, for on August 7 Philip Lord Caldwell, 3d, was born. The baby's father, Paul's oldest son, Phil, Jr., is an ensign in the Navy Seabees and at present somewhere in the Pacific. Phil, however, had the misfortune to lose his son, Gardner Caldwell, a sergeant in the Marine Corps, last May. He was a radio gunner in the Marine Air Corps and was killed in a plane explosion together with the other 12 members of the crew. The Lord giveth and the Lord taketh away. — It certainly was a pleasure to send that grand old Bobby Richards' 68 greetings on behalf of the Class on August 26, and it was great to hear that he celebrated that 100th birthday with his usual daily activity in his garden up there in Randolph, N.H. — Another Junior makes the notes: Bob Morse, VI, and his wife, Margaret, have this summer announced the engagement of their fine daughter, Jane, to Lloyd Day, Colgate '43, a Marine lieutenant now on duty in the Pacific area. Jane was graduated from Smith College last June.

In late June, on a "We, the People" Gulf Oil radio program, it was great to hear Luis deFlores, II, a captain in the Navy, describing the work of his special devices division, but personally I didn't know until af-

ter the program had passed that Lieutenant General Kenney, I, spoke from down under on the "Army Hour" program, August 6. Harry Tisdale, V, one of my de luxe correspondents, wrote, "It was thrilling to hear Kenney's voice away out in Australia, evidently at Brisbane." He added that he and Grace had spent a week in the spring at the Profile Inn, near Underwood, N.Y., to do some trout fishing, but since then have stuck rather close to home in Scarsdale "trying to keep cool and take care of a small garden." He hopes to try his luck with some salt-water fishing this fall with Joe Harrington, VI, a Westchester County neighbor — said fishing to be in Long Island Sound off New Rochelle.

I am very happy in my new work as secretary-manager of the Gardner Chamber of Commerce. It's a grand location way up in northwestern Worcester County at an average elevation of 1,095 feet. Sara and I (right back where we started from, with two sons in naval aviation and our daughter and her two-year-old son with her husband, an Army aviation trainee) have an apartment here at 47 Lincoln Street. Two weeks after coming to my new position I left to attend the National Institute of Commercial and Trade Association Executives at Northwestern University, Evanston, Ill., and that Wednesday evening, August 16, we had a small but highly enjoyable 1911 get-together at the Union League Club. So many classmates were out of the city on vacation or otherwise that it was finally Ed Woodward, VI, and Bill Whitney, III, and I who had dinner together and a fine reminiscing session. Poor Ed started a fish story — you know the first guy always loses in such a case — and it turned out finally that Bill had been up to Boulder Junction, Wisc., and landed a 47½-inch, 30-pound muskie to surpass the 44-inch, 28-pound muskie that Ed had caught at Eagle River, Wisc. In the family sweepstakes Ed came up with two daughters, both at home in La Grange, Ill., while Bill reported a married daughter, whose husband is on active duty in the Field Artillery, living at home with her three-year-old girl in Evanston, Ill. The elder Woodward girl, 22, is a graduate of Knox College, while her sister, 16, is a senior in the La Grange high school and last year was 16th in a class of 250. Before leaving the Windy City I did have a chance to have a nice phone chat with John Wilds, II, but we couldn't arrange a date for getting together.

John Bowman, XI, sent a nice letter with his Fund subscription, informing us that since September 1, 1943, he has been back with the Massachusetts Public Works Department, after being on a leave of absence in defense work for a year and a half. He said one of his associates in the department had been in the late Ted Parker's company in the last war and claimed, "Ted was a born leader and a man for whom his men would do anything." — Included in a series entitled "Gracious Ladies," in the Boston *Traveler* recently, was Mrs. William H. Coburn, the former Dorothy Davis. She and Bill have one son and live in one of the 20 oldest houses in the country — the Old Newtowne House in Chestnut Hill, the scene of that widely publicized "scrap party" that started the metal drive here in Massachusetts. — Early this summer Carl Ell, XI, energetic president of Northeastern

University in Boston, set out to raise a million dollars, and among those who lent a hand to Carl's successful effort were Tom Haines, II, and O. W. Stewart, I. This fund anticipates the erection of an impressive central student building as the third out of a total of five eventual units. The September enrollment, which included 700 new students, was most encouraging, Carl says.

Another stand-by among my correspondents is Paul Cushman's wife, Otilie. Out there in Valparaiso, Ind., where Paul is metallurgist and testing engineer of the bearing division of McGill Manufacturing Company, she is active in Daughters of the American Revolution and other club affairs and has an eagle eye for Kenney clippings. From her I learned that Frazier Hunt's book *MacArthur and the War Against Japan* contains many references to our George. Paul has been teaching an evening course in heat treatment of tool steel at Valparaiso University, as well as conducting job instruction training courses. From Otilie I also learn of the fine administration Marcus A. Grossmann, III, our aurora borealis always, is giving as president of the American Society for Metals. Otilie was a fellow-student at the University of Michigan with Thomas E. Dewey, though not in same class. — Lieutenant Colonel Richard Howland Ranger, VIII, Signal Corps (I had to open thus formally after seeing the snap he enclosed in a recent letter taken "in a dignified moment"), is continuing standards work, "which means bringing the Army, Navy, Air Forces, Canadian, British, Australian, as well as American requirements for radio and radar components into line." He wrote the message on the front page of an eight-page "dope-sheet," which he sends out periodically to boys who have passed through his course. It is a bright, newsy, inspirational production, made possible by Dick's ability to get his boys to write to him — which, being interpreted, could in this league mean "Write to Dennie!"

Ted Van Tassel, X, a major in the Chemical Warfare Service, after spending two one-month terms at the School for Special and Morale Services, Lexington, Ky., is now at the reconditioning annex, Station Hospital, Camp Gruber, Okla., where he is commanding officer. He says it's the hottest locality (in mid-August) he has ever struck but that his work is very interesting. — From Seattle, Wash., came a nice note from Whit Whithed, VI, accompanying his Fund subscription. He said there was no particular news; he was simply "working a little harder than formerly at the same old job" with Puget Sound Power and Light Company. He has a son, H. H. Whithed, Jr., who is an ensign in the Naval Air Transport, stationed at Sand Point, Wash. — Aleck Yereance, a major in the Coast Guard, for some time on active duty in Washington, D.C., was returned to inactive status as of August 10, by request of his employer (the Prudential Insurance Company — no charge, Aleck) and is once again at 80 Federal Street, Boston. Other address changes include: Paul Burdett, Point Road, Marion, Mass.; Ethan A. Collier, I, Oregon State Highway Department, Salem, Oregon; Julian S. Gravely, Hill Top Farm, Stony Creek Mills, Pa.; Ivory S. James, III, Mohawk Mill, Deming, N. Mex.; Alanson L. Palmer, 234 Rowlands Building, Columbus, Ohio.

That closes the first set of notes in a new nine-issue volume, and we hope to keep up our regular grist throughout, as always. When you meet a classmate ask him if he enjoys these notes. That's one way of finding out whether he has subscribed to Alumni Fund IV. — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

1912

It is with great regret that we have just heard of the death on August 30 of Arthur W. Frank, a commander in the Navy. We are sorry no details were given regarding his untimely passing. We have also learned of the death of Henry D. MacDonald on May 11, but unfortunately have been able to obtain no further information. And only lately did word reach us of the death of Walter V. Rohlfs in San Francisco on January 6, 1943.

Elliott Tarr, VI, returned from Scotland last spring and is now superintendent of the Red Bank plant of Bendix Radio. Elliott's son, who was recently graduated from Boston University, has taken a job in Denver, Colo., after being for several months in the advertising business here in Boston.

Pete Whittlesey has come through with a very interesting letter outlining his travels since April, 1941, when he went with Du Pont at their Charlestown, Ind., powder plant. After six months, he was transferred to the Oklahoma Ordnance Works, living in Tulsa for about a year; then back to Indiana at Rockville, at the Wabash River Ordnance Works; and then, last November, to Richland, Wash., with Du Pont. Their car has been in 26 states in the last four years, and Pete says they have lived in basements, attics, hotels, and so-called apartments of all kinds and conditions. Pete's son is a captain in the Military Intelligence and is overseas. His daughter Faith is married and has a three-year-old daughter, while his youngest daughter, Priscilla, joined the Women's Army Corps.

John Lenaerts is now located with the Union Bag and Paper Corporation — address, 16 Gordon Avenue, Savannah, Ga. — Your Secretary received a very interesting letter from Harold C. Mabbott, who is a colonel in Army Antiaircraft, reporting good health, and an A.P.O. address out of New York. — Pierre Drewsen, President of the Amherst Blanket Company, has announced the purchase of the former Pomeroy woodworking factory at Northampton, Mass. He will manufacture "Am-kets," a synthetic felt sleepcover, which was invented by Drewsen and will be used for sleeping bags for the Army, Navy, and Merchant Marine.

Have you mailed your contribution to the Alumni Fund? Our contributor quota is 130, and 106 have contributed to date. Our dollar quota is \$2,990, of which \$2,226 has been contributed. Let's exceed our quota this year by at least 20 per cent. I know it can be done, in both numbers and dollars. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown 72, Mass.

1913

On August 31, the class standing in the Alumni Fund was not good, and we should do something to improve it. We had 110

contributors, giving \$1,901, or an average of \$17 apiece. In our group, which includes classes 1910 through 1919, we stood pretty well, 5th, in the number of contributors, but near the bottom, 8th, in number of dollars. That 8th business is particular poison to Larry Hart, our Class Agent. He is busy on one tack; I am after you on another. Every man who contributed last year will get this issue of The Review. If you haven't contributed this year and can afford it, you should. Pull out that checkbook now, wherever you are, and write a check payable to the Alumni Fund, and mail it to M.I.T., Cambridge.

If your daughter has been moonbeaming over a first fur coat or your wife is considering an inexpensive stand-in for her mink, they may mention to you Mouton dyed lamb. If it's the best, that connotes Dave Nason, XIV. Dave skins no mean mule. By profession, he transmutes lambskins to a soft, beaverlike fur. In addition, he transmutes as he transmutes; he is our ace contributor to the Alumni Fund, and a suave solicitor. Dave is strong for Larry's hunch that 1913 men, 31 years out, should give a dollar for each year. This is how he put it up to me: "And, by the way, Murdock, you profiteering scoundrel, did you send that \$31 to Larry? Get your own nose clean before you try to blow others." The moral here is obvious: Do something before your name is given to Dave Nason for attention, and also give up to \$31 before you buy any fur coats, even dyed mutton.

John Blatchford, III, in a letter to Professor Locke, writes that he has been engaged for about 15 years in the field of restoring fine furniture. This came about as a development of a hobby of his during the depression, and just now there is a special demand for this work, both on account of the interest in antique furniture and the difficulty of finding someone who knows about repairing and finishing work. He also makes reproduction and special pieces, and he has more than he can do with the help that he is able to obtain in these war days. His son Tom had a year at Amherst College before going into the service and is now with the Marines in the Pacific, with the expectation of returning to Amherst College when the war is won. John's shop is at 711 Superior Street, Oak Park, Ill. — Bill Horsch, XIV, wrote: "I clipped the enclosed item about J. B. MacNeill from the *Electrical World* this morning and, on reaching home tonight, found the June issue of The Review with its rather extensive notes about our '13 men. If this item is still news to you, you may be interested to have it. Ed Hurst seems to have hit the nail on the head regarding our class spirit. But could it be possible that, under your encouragement, '13 is undergoing a resurgence of its old spirit?" Thanks for the bit of blarney, Bill. The above-mentioned article says that J. B. MacNeill, VI, has been appointed manager of the switchgear and control division at Westinghouse, succeeding R. A. Neal, recently made vice-president. Patents have been issued to MacNeill covering 30 electrical switching developments. In 1938 he received the Westinghouse Order of Merit. What next, J. B.?

From the Hartford *Times* we learn that W. A. Bottomley is president of the Eighth Ward Republican Club and serves on the Board of Education. Bottomley was with

the Travelers Insurance Company for 10 years, at Springfield, Mass., and Waterbury, Conn. He operated his own insurance agency in Hartford from 1936 until 1942, when he joined United Aircraft. — Bill Ready, VI, has moved to 85 Chestnut Street, Weston, Mass., from Brookline, and Edmund R. Norton, XIII-A, a captain in the Navy, recently left Balboa, Canal Zone, to live in South Dartmouth, Mass. — FREDERICK D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 784, Pawtucket, R. I.

1914

You just can't keep Charlie Fiske down! We argued this 30th reunion business pro and con. No gas, keep off of the railroads, and so forth. But the indomitable Charles only said: "Leave it to me. Everybody either lives in New York or has business there." So our 30th was staged just out of the city at the Westchester Country Club in Rye. Charlie was right! Nearly all of the gang was there, and all who came voted it one of the best ever.

The theme was informality: No regimentation, but do as you please. The plain and fancy porch sitters were in the majority. No, it was not quite so simple as that. The club has a wonderful golf course, and no small number of 1914 added a few divots to it. There were, however, no formal matches, and Chet Ober is still wondering how he, as high man in his foursome, came out with the top money. Chet says he wants to know more about this bingle, bangle, bungle game. Then there were the night owls who had to find out how fire extinguishers worked and why people want to sleep anyway. Art Peaslee went exploring but caught no game. About half of the crowd arrived in time for dinner Friday evening and after a pleasant cocktail hour we sat down to a dinner of reminiscences. Perhaps it should have been called a dinner to Paul and Constance (Fuller) Howes. It may be recalled that Paul and Constance are the only members of the Class married to each other. Constance was a swell sport about '14 reunion manners, and it was just grand having her in the class inner sanctum.

The "picco de resistance" of the reunion was the Saturday evening dinner. President Dorrance presided in his usual most gracious manner and tried hard to resign the presidency, but the electorate, following the national custom, was too busy to bother about details and Buck and suite are crewing the ship for another five years. No entertainment had been planned for the dinner, but no amount of preparation could have provided the impromptu schedule. Fong T. Yeh, a captain in the Chinese Navy, had just returned to this country and joined his classmates at the reunion. He gave a stirring account of conditions in China and was roundly cheered for his inspiring talk. — Admiral Tom Richey — an Annapolis man first, but a Tech '14 man a micro-second next — now stationed in Washington with the Joint Chiefs of Staffs, told us a bit about his work, but since it was about 100 per cent secret, Tom could only touch on the barest generalities. We shall be expecting a fine postwar story from him at some forthcoming class dinner. — General Waitt of the Chemical Warfare Service found his star a bit restricting so, except at the Saturday evening dinner,

appeared mostly in disguise as plain Alden of *The Tech* fame. At the dinner, however, Alden spoke authoritatively on the work of the Chemical Warfare Service, and we all received a very liberal education on the subject. Alden has lost none of his old wit and sparkle. — Herman Affel showed motion pictures of previous reunions and some others supplied by Charlie Fiske.

As *The Review* is limited in its paper, all of the happy little incidents of the reunion cannot be recorded here, but suffice it to say, a good time was had by all. Things happened so fast that your Secretary cannot vouch for the attendance, but he believes the following to be correct: H. A. Affel, F. L. Ahern, F. C. Atwood, H. G. Borden, J. J. R. Bristow, H. N. Calver, C. H. Chatfield, Phil Covitt, A. Crankshaw, E. C. Crocker, E. E. Dawson, G. C. Derry, D. Des Granges, A. W. Devine, R. H. Dickson, A. C. Dorrance, T. J. Duffield, D. A. Fales, L. D. Faunce, C. P. Fiske, C. E. Fox, H. T. Gazarian, J. E. W. Giffels, D. F. Gould, E. C. Hadley, O. C. Hall, A. E. Hanson, W. G. Hauser, Constance F. Howes, P. S. Howes, F. P. Karns, W. P. Keith, M. C. MacKenzie, D. H. N. Mayo, R. A. McMenimen, R. W. Moorehouse, H. A. Morrison, C. H. Ober, P. B. Owen, R. L. Parsell, A. F. Peaslee, G. K. Perley, R. H. Perry, T. B. Richey, H. B. Richmond, R. D. Salisbury, W. A. Simpson, L. W. Snow, R. V. Townsend, A. H. Waitt, Bill Warren, E. C. Wente, C. H. Wilkins, L. A. Wilson, F. T. Yeh — a total of 55.

Norman MacLeod had expected to attend, but affairs in Rhode Island prevented him. Norm is the Republican nominee for governor of Rhode Island. More power to you, Norm, and if elected you will be our first governor. — Another who had planned to attend but was prevented at the last minute was Ray Dinsmore. Ray, who is vice-president of Goodyear Tire and Rubber, has been very active in the synthetic rubber program and under his direction a continuous production process has been developed which has made possible a 40 per cent increase in output. — Porter Adams sent greetings to the reunion by calling up during the dinner and talking with several present. Porter is now up and around with the aid of crutches but felt that in view of general transportation difficulties it would be unwise to try to make the trip to New York. — Dave Sutherland, who is stationed in England as a lieutenant colonel with the Air Forces, sent his best regards but said that even with air travel it was just too much of a jump to make it possible for him to attend. — Dunc Shaw and Con Callahan signed up, but we never did hear from them. — Bob Doremus sent his best but said his war work made it impossible to leave Detroit. Bob is with the Detroit Ice Machine Company.

A reunion *in absentia* arranged by Bill Lucas was held in Santa Monica. Bill got together nearly all of the 1914 men in that area for a dinner at the Swiss Chalet in Santa Monica. Don Douglas had planned to head the group but at the last minute was called away on business. Leon Abbott, who came up from Whittier, Lyman Baird from San Diego, Thorn Dickinson, Carl Sanborn, Henry L. Gardner, and Jim Holmes from Los Angeles, together with Bill Lucas, comprised the party. More power to you, Bill, for your enthusiasm.

We also note your comment that Carl Sanborn, as usual, was the life of the party.

Speaking of Don Douglas, the Boston *Globe* carried a feature article about him this summer which was of particular interest to classmates. Instead of dealing with his present success, the article told about Don's undergraduate days and brought in references to several other members of 1914, including Schaurte, Porter Adams, Buck Dorrance, Chow of Chinese typewriter fame, and your Secretary. — *The Tech* also carried an article of interest to '14 men. It was about our honorary classmate, William Jackson, who was keeper of the mail in our undergraduate days and now runs the Information Office. Willie has been around the Institute for about 35 years. — When he was with us at the reunion, we did not know that J. J. Rucker Bristow was about to be the hero in a forthcoming *Saturday Evening Post* feature article. It seems that Rucker is the motive power behind a big Florida project for selling orange juice in its natural, pure, and unadulterated flavor. The article was entitled "Citrus Concentrates, Inc." With President Buck in the soup business, Rucker dispensing fruit juice, and Norm MacLeod a leading turkey raiser in New England, the Class should fare all right. Boggs Morrison can keep us clean with Lifebuoy, but what '14 man owns a distillery?

It is with sincere regret that these notes about such a successful reunion must be ended with a note of sorrow. Course VI men in particular were happy to have Al Hanson with us at the reunion. Al had been a regular attendant at these five-year reunions and we all looked forward to seeing him with his soft, pleasant smile and his sincere spirit of friendship. Just two months after the reunion, while taking a well-earned vacation at Falmouth, Mass., with his family, Al was seized with a heart attack while swimming and, although rescued immediately, died before being brought ashore. Al had been carrying a very heavy load as superintendent of maintenance at the Government Printing Office in Washington. At the time of his death he was secretary of the Washington Safety Society and for many years was secretary of the Washington Society of the M.I.T. He is survived by a wife and three daughters. — H. B. RICHMOND, Secretary, General Radio Company, 275 Massachusetts Avenue, Cambridge 39, Mass. CHARLES P. FISKE, Assistant Secretary, 1775 Broadway, New York 19, N.Y.

1915

Hello, everybody! Greetings to my classmates to open this new season of notes. We are doing very well on the Alumni Fund. On September 1, 126 men (72 per cent quota) had given \$2,351 (80 per cent quota). There remain some men who gave last year who haven't yet given this year, but if these men will send in their usual average, we'll hit our quota. Remember that although you will get the first two issues of *The Review*, November and December, you do not receive the balance of the issues unless you have contributed to the Alumni Fund. Please mail your check.

To keep you posted on the whereabouts and activities of some of our classmates, let me tell you about some of my summer contacts. I had lunch with Loring Hall in

Detroit. He's busy as a vice-president of United Carr Fastener Corporation. Several days were spent at the summer place of Gabe and Tess Hilton on the Canadian shore of Lake Erie. This visit was enlivened by Bill McEwen at dinner one evening, and Ben and Margaret Neal for a Sunday afternoon and evening. I do not have to tell you about the gay time we all had together. With their reputations as hosts, I simply leave you to judge.

I met Allen Abrams in Boston, and he later wrote: "I have another daughter entering Wellesley this fall, so very likely shall be in Boston again. Meanwhile best wishes to you all and congratulations on keeping up the 1915 column in your customary efficient manner." — Alfred Hall, of Saco, Maine, has been for a rest this summer at the New England Sanitarium in Melrose, Mass., where I had a pleasant visit with him. Later he wrote me that he had retired from his position at Saco-Lowell Shops, Biddeford, Maine. I know everyone will join with me in wishing Al a comfortable and enjoyable retirement. — While visiting in Philadelphia, I had a delightful lunch with Herb Anderson, Henry Daley, Dick Bailey, and Ed Whiting. They all have children in some of the armed services, and it was another occasion of a jolly gathering with fine old friends. — Herb Swift is a real "speed" boy, from his New London, N.H., district where he has been re-elected to the state senate. Keep going, Herb; we still may have a governor in our Class. — I have seen most of the fellows in and around Boston during the summer and have had many pleasant social times with them and their families. Our Class certainly boasts an unusually fine feeling of friendship.

I missed seeing Louis Zepfler while he was in Boston to see his first grandson, John A. B. Knox, 3d. The Standard Oil Company has lent Louis to the Army for four months as an expert consultant. This trip took him to Chicago, Seattle, and Los Angeles, and then to Dallas, where he expected to see his son, a private, first class, in the Marines. — Henry Sheils' granddaughter was born this summer; so he is another member of the Grandfathers' Club. — On the 22d of July, in New York City, Charlie Williams' daughter Edith was married to John Edgar Nearing, a lieutenant in naval aviation.

From One Park Avenue, New York City, Gene Place writes: "I am sorry not to have been able to see you at our New York class dinner, but, as anyone who has had experience with the sulpha drugs knows, they leave you with knees made of rubber and you know that the rubber situation is not what it used to be before the war. I'm looking forward to our 30th reunion in 1945." — San Willis writes that he is up to his ears in ordnance production research. He seems to have found his niche in the war effort revamping production methods and processes to the end that costs can be lowered and production speeded up. He finds the work most interesting, and it has the very satisfactory advantage that everyone benefits. His clients obtain business they would otherwise lose, the government saves in lower prices, and last but not least he himself is kept active and busy.

Ken Kahn of 2269 Canyon Drive, Hollywood, says: "The local Technology Alumni

gathered at the University Club on Tuesday, June 13, and were treated to an address by Raymond B. Stringfield '15, X, on postwar materials. Ray is always entertaining and instructive. Out of about 900 in this district, 68 were present. Ralph Atkinson '29 presided. New officers are Ford Sammis '28, Chairman, and John B. Pitkin '37, Secretary. Among the '15 men present besides Stringfield and myself were Rivers, Mellema, Nibecker, and Norberg. . . . It certainly is nice to know our boys can get together way out on the West Coast.

From Oakland, Calif., Earl W. Brown, 5708 Clover Road, sends this note: "I've been sick in the hospital since March, so was delayed in sending my check for dues. If you want to know about penicillin see me. I had plenty and am well on the road to recovery." Glad to hear that you are mending, Earl. — Bill Mellema, 3027 Henrietta Ave., La Crescenta, Calif., wrote a glowing congratulation on our showing in the Fund and says it compares most favorably with the very successful results of his 1915 class at Amherst.

From far and wide our classmates all seem to feel that we should have a 30th reunion in 1945. Accordingly, I'll get the old committee together this fall and will let you all know what the preliminary plans will be. If any of our classmates visit Gardner, Mass., they should drop in to see Orville B. Denison '11. He's general secretary of the Chamber of Commerce at Gardner. A parting thought and an appeal — send in your check for the Alumni Fund and let's hit our quota — and thus "help Azel." And don't forget to send in some material for these class notes. — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

1916

Don't forget the Alumni Fund, which is still short of its quota. Classmates who have not contributed should promptly send their check, made payable to the Massachusetts Institute of Technology, and mailed to the Alumni Fund at the Institute.

It is your Secretary's sad duty to record the death of Samuel M. Ellsworth who died on August 13 at the age of 49. Sam was a veteran of World War I, was secretary-treasurer of the New England section of the American Society of Civil Engineers, was a member of the American Water Works Association and a member of the American Institute of Consulting Engineers. His wife and two sons are living at Braintree, Mass.

In August I had a letter from Ralph Fletcher. He asked for the addresses of classmates now stationed in Washington, D.C. Ralph spends a good deal of time in Washington. Doubtless he has looked up some classmates since being furnished with a list from my office. Perhaps other members of the class would like the names and addresses of classmates in the cities which they visit during their travels around the country. Do not hesitate to get in touch with me for such information.

Frank B. Hastic, a lieutenant colonel in the Engineers, sends the following: "Since December 27 I have been in command of this regiment, which is an Engineer General Service regiment (colored). I joined at Camp Sutton, N.C., from which station we moved to the California-Arizona maneuver area, and thence to our present station. Our

function is construction of a general nature, embracing roads, bridges (both fixed and floating), buildings, utilities, and obstacles of various sorts. The Hastic luck has held in my assignment to this outfit, as the men have a fine spirit and with fair treatment and competent leadership will do their utmost. So far their performance has received commendation at this and at their last station, and I have every reason to believe that if we are fortunate enough to go overseas, this will be recognized as one of the best colored engineer regiments. You may be interested to know that there is a fellow alumna connected with the regiment, Mrs. Peter Geddes '33, the wife of one of the battalion adjutants. She was in Course IV, I believe. My oldest son, John, is now a first classman at West Point and I hope will be graduated next June. The other four young Hastics, together with their mother, are all doing well. After living for three years in Washington, D.C., the family moved to Burlington, Vt., at 191 Loomis Street, where I anticipate they will remain for the duration."

B. C. Boulton turns up after a long absence from these notes. He is a member of the staff in charge of engineering in the Douglas Aircraft Company, in Santa Monica, Calif. B. C. has been in the airplane business ever since the last world war. He writes of his family: "Perhaps you would be interested in one or two items of news in regard to my family. Two years ago my eldest daughter was graduated in occupational therapy from Washington University, and this fall the three other girls are college bound, one to Stevens College in Missouri and the other two to Pomona, an excellent college not far from here. My other youngster is an eight-year-old husky with whom the California climate seems thoroughly to agree. We are unable to enjoy the opportunities California offers for vacation on account of the gas shortage and the crowded conditions of all of our seaside towns, which are pretty well taken over by the Army or Navy."

Chuck Loomis of Memphis, Tenn., did some personal reuniting at Oyster Harbors early this summer. Incidentally, he put in a little preliminary work with the manager of the Oyster Harbors Club, hoping to pave the way for our 30th reunion in 1946 at that location. The following is taken from a recent letter from Chuck: "I have seen or heard from no members of the Class except Howard Claussen, Tom Little, and John Phillips, all of whom work in one capacity or another for Bemis Brothers Bag Company. I spent two days with Howard in St. Louis recently and in March saw both Howard and Tom Little in Chicago. I also had a chance to visit with John Phillips in St. Louis. Both Howard and Tom have been fighting the Battle of Washington as important members of industry committees on cotton and burlap goods supplies. Both have done admirable jobs. You can easily imagine that the problems of getting enough burlap to keep the textile bag industry going in the early years of the war was a very difficult one. Most recently burlap has been coming in fairly freely. On the other hand, Howard Claussen's problems of helping the industry secure sufficient cotton goods become more difficult every day, as the labor shortage cuts deeper and deeper into the production schedules of the south-

ern mills. My own part in the war has consisted of manufacturing a good many million more bags than our small plant here was designed to produce and of serving as a member of the local draft board and as an employer member of local War Labor Board panels. The draft board, of course, has become much simpler in the last few weeks since most of the responsibility was taken out of the hands of the local board and passed on to state headquarters. About all we are hearing now are the hardship cases. I have learned a lot about labor relations from my work with the War Labor Board and more recently through my contacts with a new union in my own plant. It is going to be interesting to see what industry can do after the war to get rid of some of the restrictions that have been imposed as war measures by the War Labor Board. I'm afraid that the unions are going to consider these war gains as permanent and fight hard to retain them when the government restrictions are removed. Perhaps we are letting ourselves in for an unusual amount of labor strife in the postwar period by some of the current decisions of the War Labor Board. My younger son, who is at Plattsburg, should be commissioned late this month as an ensign, if he makes the grade of the last few weeks of his naval training course. He was graduated from Dartmouth in March. My older boy, who was graduated from Technology a year ago last February, has been and still is on government research connected with the short-wave electronics developments. He is stationed at Harvard working with what I understand to be an offshoot of the electronics laboratory at the Institute."

Frank G. Darlington turns up after a silence of many years, with the news that he spends most of his time in Hyannis Port, Mass. Frank is quite a yachtsman and from 1935 to 1941 in six cruises along the coast put into 47 different Maine harbors. His schooner, the *Marmion*, has been turned over to the Coast Guard. Two daughters, Elise and Jessica, are at Smith College. His son Ed is in Sewickley Academy. Classmates take notice: Perhaps we can persuade Frank to be commander of a 1916 fleet of boats on a rendezvous at Oyster Harbors in 1946 for our 30th reunion. The nucleus of this fleet might be made up of the boats owned by Hovey Freeman, Frank Darlington, and Jim Burbank. Other candidates get in touch with your Class Secretary.

The following gives a good picture of what Harold F. Dodge is doing on the home front: "I have been doing some more traveling around the country talk-talk-talking day in and day out in a series of three-day stands at various procurement centers, as one of four musketeers running a series of quality control training conferences for the several technical services of the Army under the auspices of the Army Service Forces. A month or so ago I had a brief chat with Hen Shepard at an alumni dinner in Washington, where Bradley Dewey gave a talk on the rubber program. I also talked with Joe Barker at the Pentagon Building; Joe, of course, still has his hands full with the Navy V-12 program. I still carry the title of consultant to the Secretary of War, the principal job being that of setting up and instructing Army personnel in the use of quality control acceptance inspection procedures, which have as their objective an

enforcement of systematic control of quality of matériel offered for acceptance by contractors. A year and a half ago we made a three-month tour of this same kind under the auspices of the Office of the Chief of Ordnance. This year the scope has been broadened to cover all services. Before our current travels are over, we expect to reach the West Coast. If you have the addresses of any of our classmates located at Birmingham, Dallas, Los Angeles, or San Francisco, I should be very glad to have them."

Note the following communication from Walt Binger: "Bob Wilson, President of Pan-American Petroleum and Transport Company, at my request, spoke at a meeting of the Willard Straight Post of the American Legion, of which I am past commander. Several other Technology men, but not of our Class, are members. Wilson did a beautiful presentation of the natural and synthetic oil situation throughout the world, and his talk received great praise. I talked to Bob about the 25th reunion book. To refresh your mind, before the reunion I had got the histories of a large number of men and had expected to get the book into print. Shortly after that I flew to England, and less than 60 days after my return came Pearl Harbor. Since then it has never seemed particularly desirable or useful to pursue it further. Also, because of my chairmanship of the War Department's national technological committee, I have simply not had the time. Sutherland, who had been helping me, spent about a year in Washington.

"Bob and I are agreed that the whole book should be put off, because of the war, to the 30th reunion and that an effort should be made several months before that event to bring the histories already on hand up to date. Such a book, I think, would also be more interesting, since it would include war activities, whether the men are civilians or in the services. If you agree with this decision, we felt that it should be published in the class notes." Classmates having an opinion on what should be done about the class book of biographies which was discussed at our 25th reunion may express their views to the Class Secretary, who will be glad to pass them along to Walt Binger and others interested. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Berke Moore Company, Inc., 11 Boylston Street, Brookline 46, Mass.

1917

More startling than the day's war news, even overshadowing the numerous clippings about Commodore Sullivan, is the announcement of the engagement of Captain Helen Gertrude Westerdale, of the Women's Army Corps, to Lieutenant Commander Walter Cromwell Wood, of the Coast Guard Reserve. Captain Westerdale is now stationed at Petersburg, Va. The Boston *Traveler* had this to say about Jack himself: "Lt.-Comdr. Wood, popularly known as 'Jack' Wood, attended M.I.T. with the Class of '17, is a member of Sigma Alpha Epsilon fraternity and served in the Army Air Corps during World War I. Prominent in yachting activities on Massachusetts and Narragansett Bays in the International Star Class, and in the Inter-Collegiate Yacht Racing Association as a

lecturer, racing skipper and director of sailing activities he was selected in 1936 to become the first director of the highly successful M.I.T. sailing program and later served as master of Senior House Tech. He was also associated with the early development of the Community Sailing Association of Boston. He is at present an instructor in the seamanship department of the U.S. Coast Guard Academy, New London, Ct." — Our latest clippings about Commodore Sullivan, from the July papers, stated that he was in Cherbourg, restoring the wrecked harbor. As usual, he was doing magnificent salvage work.

It is reported that Herbert C. Williamson, a lieutenant colonel in the Army Air Forces, played an important part in salvaging a Navy Lockheed bomber of which the pilot had made a forced landing on a narrow sand bar of the Natashkwan River in the northern wastelands of the Province of Quebec. Colonel Williamson, as commander of an Army air base, was called into consultation by the Navy, and it was he who directed the Army effort, in co-operation with the Navy, in repairing the stricken bomber and in preparing a runway from which it ultimately took off. The job took less than two months, and its success brought fine tributes to the engineering skill, enterprise, and energy of Colonel Williamson. The printed story of his exploit has now been supplemented by a motion picture entitled *Northern Canadian Incident* and made for national distribution. Colonel Williamson's older son, who enlisted in the Army at the same time, was recently given a medical discharge. His younger son is enrolled in an Army flying course at Cornell University.

Enos Curtin dropped in recently and reported that he had seen Al Moody in Oran the day before Al participated in the Sicilian invasion. Lieutenant Colonel Curtin had been in England and Africa on delicate Army administrative missions and expected to don civilian clothes the next day after his visit. — In a recent letter, Edwin J. Grayson, a captain in the Ordnance Department wrote: "For the class notes I might say that I am now stationed at Cornhusker Ordnance Plant, Grand Island, Nebr. Grand Island, the third largest city in the state, has an active Engineers Club, but thus far I have not run into any Technology men." — Roger L. Putnam, former mayor of Springfield, now a lieutenant commander in the Navy, returned early in August for a two weeks' leave, after having served for eight months prior to D-day as logistics officer. — Late in June we received a clipping stating that Walter L. Medding, a colonel in the Army, was chief engineer for the Rome area command. Under his direction the damaged water supply had been repaired and was then 60 per cent of normal.

William L. Dennen, a colonel in the Coast Artillery Corps, wrote in early July that he was scheduled to go overseas shortly. His son, William '42, XII, has a permanent commission as captain in the Marine Corps and was then serving overseas. Another son, Richard, was graduated from West Point in June, and is in the Air Forces. — Lin Noyes, publisher of the Ironwood, Mich., *Globe*, was again last April elected president of the American Newspaper Publishers Association. — Vic-

tor Dolmage is in charge of the development program of Industrial Metals Mining Company, Ltd., on Texada Island, B.C. — At Tech Night at the Pops early in June, we spotted two or three classmates with their families and probably missed others. Al Lunn was on hand with Mrs. Lunn and his daughter and young son. Rudy Beaver and E. M. Woodward paraded the corridors, and Ken Childs was seen in the offing.

Anyone interested in raising swine should address Neal E. Tourtellotte, 403 White Building, Seattle 1, Wash. If the interest is serious, the correspondent will receive a beautifully illustrated little brochure titled, "I Am Raising Registered Hampshire Swine." On the cover page are two attractive snapshots — one of a portly and one of a porky gentleman; a pipe in one of the faces identifies the owner of the business. Indications are that the swine breeding business at Neal's Janalu Farm is well established, competing seriously with rose growing and his other activities. — RAYMOND STEVENS, *Secretary*, 30 Memorial Drive, Cambridge 42, Mass. PHILIP E. HULBURD, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

1919

The 25-year reunion get-together held at Norwich Inn, Norwich, Conn., on July 28, 29, and 30 was pronounced exceedingly successful and pleasurable by some 60 members of the Class who were present; in fact, it was the unanimous opinion that it was the best managed, most successful, and most enjoyed of all held so far by the Class. The banquet Saturday night was started off by Jesse Stam's reading of a beautiful toast poem, composed during the afternoon, with a generous supply of prewar Scotch available. Will Langille, chairman of the reunion committee, provided an excellent public address system with an attendant, which supplied fitting incidental music. After dinner a short business meeting was held. President Don Way extended the official greetings and congratulations to the committee. Secretary-treasurer Smoley reported on the 25-year book, class notes, and the results to date of the collection of war bonds as the class gift to the Institute considered most substantial and useful. Following the business meeting, Leo Kelley, chairman of the banquet entertainment, took charge. Tim Shea, as chairman of the sports committee, presented the golf prizes. Bob Hackett received an electric fan for low gross of 90, Gene Smoley an electric fan for low net with 70, Warren Maynard won an electric toaster for the kickers, Freddy Given a vacuum cleaner for the approach nearest the pin of 19 feet, and Karl Rodgers a grinder for the putting contest with 37. A 1920 "Technique" which carried 1919 class photographs and biographies, with signatures and short inscriptions from those present, was raffled off by Jesse Stam and won by Frank Adams.

Leo then introduced the speakers: Dean Lobdell, guest of honor, Freddy Given, Professor Joe Newell, and Tim Shea. Dean Lobdell's talk gave the Class an intimate picture of Technology's problems and achievement during the war years. Fred Given gave a brief account of his assignment in 1943 as chairman of the United States mission to England on mica. Among other things he gave some amusing side

lights on British words and expressions, on the Scottish yen for saving pennies, the supply of Scotch whiskey, and the surprising British propensity for telling traveling salesman stories. Professor Joe Newell spoke at length on the future prospects of the aviation industry. Joe was decidedly pessimistic on civilian flying of planes and helicopters in postwar prosperity. Tim Shea gave a thrilling whirlwind five-minute account of his association with countersubmarine and pros submarine electronic gadgets. He sang loudly the praises of the almost forgotten men of the submarine service. He applauded their heroism, valor, and extreme modesty and stated that they were performing a major role in winning the war. The balance of the program included a radio skit composed and staged by Leo Kelley. The program was concluded by a brief session of tall story telling and the showing of two reels of Army motion pictures on the European war, which were obtained from the Signal Corps by Tim Shea.

Other activities at the reunion were two softball games, swimming, and porch sitting. Since the whole affair will be covered in more detail in the 25-year book, it is only abstracted here. Among those present were Ev Doten, who came all the way from Detroit, Ben Sherman from Chicago, Al O'Donnell and Louis Grayson from Washington, and Jacob Lichter from Cincinnati, Ohio. The reunion was preceded by luncheons for members and wives in New York and Boston. The New York luncheon was held at the Technology Club on July 26 under the chairmanship of Fred Given and was so successful that it was decided to have mixed class luncheons annually hereafter. The Boston get-together was held on July 28 at the University Club with Alan Richards in charge of arrangements. Hy Selya, to whom we owe a vote of thanks for his share of the success of the pre-reunion mixed gathering in Boston wrote in as follows prior to the reunion: "Still carrying on at the Sagamore, and I think that we are getting and doing our share. Last month, I was elected president of the Drysalters Club of New England, which is an association of dyestuff and chemical men, and now in its 59th year."

The latest returns for the collection of the Alumni Fund, as of August 31, show that our 103 contributors represent 66 per cent of the quota set for our Class; the amount collected, \$1,065, 40 per cent of the quota. Last year our Class ended with 124 contributors. Let's all try to raise the number of contributors from our Class closer to our quota of 155. Everyone should keep posted on his class by reading our class notes.

Your Secretary has had many letters from members of the Class offering to contribute funds to the 25-year biography which is now in preparation. As announced at the reunion, funds will be required to finance this book and contributions will be requested when the total costs are more definitely established.

Dick Cashin, who is with the Westboyd Chemical Company, 1301 West 31st Street, Chicago, writes: "A week or two ago I gave up all hope of attending the reunion with the usual excuse, pressure of business. My own business is rushing, and in addition I recently joined Dutch Seifert in

forming a company to mildewproof all types of cord and rope, chiefly for the South Pacific war area. We are overloaded with contracts, so much so that it is a virtual impossibility for either of us to get away. I have been the '19 secretary in the Technology Club of Chicago for the past few years. The following are regular patrons of our gatherings: Ben Sherman, Fred Barney, Fritz Boley, Dutch Seifert, Ed Farrand, and of late, Duke Herzog. I met Doc Flynn a few years ago on his way west. More recently, I met Al Richards in Chicago while he was reporting at his head office. Congratulations on the grand job you are doing and have done for old '19. The class notes are most interesting and make very pleasant reading."

Mail to the following men was returned for lack of proper address; if anyone knows their whereabouts, kindly write in to the Class Secretary: Louis A. Brown, Jr., Philip R. Brown, Oscar J. Fulreader, Dirk J. Luykx, Burritt A. Root, James B. Scully. The following changes of address have been received: Norman T. Bourke, a professor at the University of Florida, makes his home at 451 Washington, Gainesville, Fla. Jacob Braverman is now located at the Empire Corrugated Container Corporation, 360 Furman Street, Brooklyn 2, N.Y. Frederick R. Hewes is a captain at Quarters K, Naval Air Station, Corpus Christi, Texas. Ervin M. Kenison, formerly in Huntington, W. Va., is with the Federal Power Commission, 1757 K Street, Northwest, Washington, D.C. George McCarten has moved from Bound Brook, N.J. to become associated with Armstrong Company, 241 South Post Street, Detroit, Mich. James M. Strang, a lieutenant colonel in the Army, is at 58th General Hospital, A.P.O. No. 350, care of Postmaster, New York, N.Y.

The Newark, N.J., *News* for June 28 carried the story about Rogers B. Johnson, who is New England representative of a New York engineering firm and also holds the position of head of the department of buildings and grounds at Harvard University. The paper stated that Johnson was appointed successor to Shirley, retiring business manager of the Board of Education. Johnson had received degrees in Engineering and Business Administration from Harvard and in Civil Engineering from Technology. It was stated that he declined the post as successor to Shirley even though the board had selected him as one of the best prepared men in the country for the position.

A release from Army headquarters in the European theater of operations, entitled "M.I.T. Graduates Maintain Battle Supply Lines," listed a number of Tech men who are rushing replacements and supplies to the Normandy battlefields. Among them is Major George F. French, who is at an invasion port as a marine maintenance and repair engineer. — Wirt Kimball, who demonstrated his prowess in the field during the softball games at Norwich, is located at the Providence field office of the War Production Board as a priority and order specialist. Wirt has a son 12 years old. Wirt still plays tennis, collects stamps, and likes contract bridge.

Mrs. William Benjamin Ford announced the marriage of her daughter, Mary Elizabeth, to Francis A. Weiskittel, an Army

captain, on August 4, at Baltimore, Md. Francis wrote his regrets at not being able to attend the 25-year reunion since he was just being transferred to the Air Forces from the Chemical Warfare Service and was attending the Termination Officers Training School, Vandalia, Ohio, until July 28. — Don Way announced the birth of a daughter on July 26. Both wife and daughter were reported as doing well. — F. R. Hewes writes that he was sorry to have missed the 25-year reunion. He says, "I was detached from duty at the Naval Operating Base, Norfolk, Va., on July 16 and reported on July 21 as public works officer of the Naval Air Training Center, Corpus Christi, Texas." — In the issue for April 19 of *National Petroleum News* appeared a picture of J. G. Fleckenstein, Vice-president of the Crystal Refining Company, who has just been made a director of the Detroit Oil Men's Club.

The following telegram was received from Cut Davis at the reunion: "Many things have conspired and transpired to make it impossible for me to join in the 25th reunion. I hoped up to the last that I might make it. How I should like to see the old gang by Sunday morning! I imagine that many will realize that the expression 'old gang' has now become more truth than poetry." — A telegram was also received from Charles A. Parsons: "Regret business prevents attendance. Theater a stern taskmaster. . . ." George A. Irwin, a lieutenant colonel in the Quartermaster Corps, wrote: "One glance at the source of this letter will convince you that as much as I should like to be present at the reunion, it will be impossible. I hope you will all have a good time and look forward to being with you at the next reunion. I am at present on the Galapagos Islands, Pacific Ocean." — Myles F. Connors wrote: "Owing to a rather long drawn out illness, I'll be unable to attend the luncheon. I wish I could be with you."

George McCarten sent his regrets about the reunion and added: "I am out here at Detroit on a new job as manager of a small company started May 8 and expect to get my family moved out here early in July. I had Sunday night supper with Ev Doten a few weeks back, and he plans to go east for the reunion. Golly, I wish I could too, but am right up to my neck on the new job." — Richard Holmgren of 3028 College Avenue, Berkeley, Calif., wrote in regard to the reunion: "Sorry, but the old war effort won't let go long enough for me to make the trip." — Chuck Drew explained it thus: "I have delayed writing you for some time hoping that it would be possible for me to join in the festivities on July 28. I am now very much disappointed indeed that I am not going to be able to get East. Give my kindest regards to the fellows. I hope it won't be too long before I shall be in New York again and am looking forward to seeing you at that time."

Sending his regrets at not being able to attend, Raymond G. Lafean said: "I have been quite active of recent years in our local M.I.T. alumni association, which I am now serving for the second year as a member of its executive committee. Consequently, I am fairly well advised of what is going on at the Institute, but there are certain things which we just should not do, and one of them happens to be my

going away at this time, so I shall have to pass. You have laid out an excellent program, and I am sure you will all have a delightful and interesting meeting together. Please keep me informed of other events as they come up, and I hope to join you all one of these times at a reunion." — George W. McCreery wrote as follows: "Sorry, I shall not be able to attend the glorious 25th reunion. I shall be out of town on a long neglected rest period." — Dr. George Kahn of 6 Cummings Road, Brookline 46, Mass., said: "I'm extremely sorry that commitments which I could not avoid make it impossible for me to attend the 25th reunion of our Class. I assure you I shall be with you in spirit if not in body. Give my kindest regards to the boys and wish them every possible happiness from me during the reunion and after it. And tell them I'll certainly attend the 50th."

Morris P. Berk wrote: "I am very sorry indeed that I shall be unable to attend the 25th reunion. As you will note from the letterhead, I am at Camp Wings, which I own and operate. The work is so concentrated and confining that it would be impossible to leave for even a short period of time. I shall greatly miss renewing the old friendships and comparing notes on family status. If, sometime this winter or in future winters, there should be a renewal of the yearly reunions, I shall be more than happy to attend. You might be interested to know that I have a son, Laurence, who, when last heard from, was on his way to the European theater of operations as a soldier in the Signal Corps, and that my daughter, Lois, is 16 years old and in high school." Harold F. Marshall, a major in the Air Forces, Route 1, Byron Road, Osborn, Ohio, wrote: "I doubt that it will be possible for me to be present at the reunion, much as I should like to be there since my son, James L. Marshall, is entering the Institute in July."

We have recently learned, by a telephone call from his sister-in-law, that John Richard Rowe died on December 12, 1943, from a heart condition with pneumonia complications. He was married but had no children. — A. R. Wren is completing a book on "Practical Management Research."

E. J. Flynn writes from Palmerton, Pa.: "The job you have done in such a persistent and thoroughgoing manner over the past five years is deserving of highest praise and the gratitude of the Class, and I hereby convey to you my share. It is with real regret that I forego seeing and being with the incomparable '19 men at this time. Best wishes for a fine reunion, a ringing Stein Song, and all that that means to Tech men everywhere." — There is still time to send in your biography and current snapshot for the 25-year book, but this is definitely the last opportunity. Be sure to do it at once. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 420 Lexington Avenue, New York 17, N.Y. ALAN G. RICHARDS, *Assistant Secretary*, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

1920

Greetings to everyone after our summer holiday, and let me express the hope that it was a pleasant and beneficial period for all of you. More particularly, let me remind

you that our 25th year is fast approaching and that events are shaping up so that it looks as if we might have occasion for untrammelled rejoicing when next spring rolls around. At any rate, your active interest and support are hereby requisitioned. We want the reunion to be the biggest and best ever and to satisfy the greatest number of us. If you have ideas or suggestions, now is the time to express them. Ed Farrow thinks the reunion ought to be near Boston to enable the boys from distant points to revisit the Institute. Many others favor a Connecticut rendezvous, as we have had in the past. Al Glassett, Vice-president of the Alumni Association, Vice-president of W. J. Barney Corporation of New York and past President of the Technology Club of New York, writes: "A number of us down here have talked about the 25th reunion from time to time, and I can assure you that we are all counting on it in a big way. Although a bachelor myself, I think the feeling here in New York is very definitely that wives should be present. Regardless of how the war goes in the coming months, I am sure there will be a very substantial turnout for this reunion. If there is any way that I can be of help, you know, of course, that I shall be delighted to co-operate." That's the spirit, Al, and you may be sure we will call on you.

The Quaker Oats Company has announced the appointment of Lauren B. Hitchcock as manager of the chemicals department, located at the general offices, 1900 Board of Trade Building, Chicago. For the past nine years Lauren has been with the Hooker Electrochemical Company, Niagara Falls, N.Y., lately as manager of sales development. Before that he was professor of chemical engineering at the University of Virginia. — Bob Aborn has been appointed supervisor of physical metallurgy at the research laboratory of the United States Steel Corporation of Delaware at Kearny, N.J. Dr. Aborn began his career in the steel industry soon after 1920 with the Bethlehem Steel Corporation. He has been with the Watertown Arsenal and in the Research Laboratory of Applied Chemistry at the Institute. Before joining United States Steel in 1930 he did some teaching and research at Harvard. He has specialized in alloy steel and welding research and was awarded the Lincoln Gold Medal of the American Welding Society in 1941.

Hank Erickson, who was deputy administrator of War Production Board Order L-208 (the gold mine closing directive), has resigned and taken a position with Allis-Chalmers Manufacturing Company. Harmon Deal is in Bloomington, Ind.; address, 904 South Hawthorne Drive. Harold Murray has left Cambridge and moved to Brockton; address, 43 May Avenue. Art Roberts is in Shaker Heights, Ohio; address, 2870 Woodbury Road. A. H. Castor is a major with the Army Air Forces Officers Replacement Depot, Greensboro, N.C. Eric Etherington has moved to Wayne, Pa. Edward M. Howard, a lieutenant commander, is back in this country and may be reached at the Public Works Building 200, Navy Yard, Boston. Ken Akers has moved to Needham; address, 61 Fair Oaks Park. Aaron Bradshaw, a brigadier general, is at Fifth Army Headquarters, A.P.O. No. 464, care of Postmaster, New York. Major

General Roger Colton is in Washington; address, 2602 36th Street, Northwest. Al Demmler has moved to Muskegon Heights, Mich.; address 101 East Hovey Avenue. Henry Dooley is a lieutenant commander at the Naval Training Center, Gulfport, Miss. Captain William Nelson is at the Consolidated Vultee Aircraft Corporation, New Orleans. M. S. Sanders has left Kansas and is back in New York; address, Kings Crown Hotel. Thomas R. Taber, a colonel, is with the 12th Corps Headquarters, A.P.O. No. 312, care of Postmaster, New York.

Too late for notice in the last issue of The Review we received word that Ev French had passed away on May 19. Ev had been living in Orange, Mass. I saw him in Boston about a year ago, and he looked badly then but didn't have much to say except to express interest in and affection for the old gang. All of us will mourn his untimely passing. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

Thanks to your continued generous support of the Alumni Fund, our greetings for the year ahead now reach a greatly augmented group. In wishing you the best of good fortune, may we remind those few who have not yet sent in this year's contribution to do so without delay so that there will be no lapse in receiving The Review. Lest you forget, our quota is based on a minimum of \$15 per capita. Send it now!

In adding to the vital statistics Munroe C. Hawes, X-A, the mayor of Sea Girt, N.J., is not to be outdone by the Conant, Zoller, Pelkus, and Bardes families. Their fifth child, a boy, joined Munnice and Alix on July 17, according to a report from C. Wesson Hawes '17 of Federal Telephone and Radio Corporation. Aimee, the eldest girl, is now 20, Munroe, Jr., is 19, Elizabeth, 14, and Alexandra is 7. — Oliver L. Bardes, XV, has a daughter, Merrilyn, who is now eight months old. Ollie has two older boys, Oliver and David. He is president of the Bardes Range and Foundry Company, Cincinnati, Ohio.

Robert C. Dolle, XV, is back in Cincinnati, operating his Lakeview aquatic farms, after having spent some time in St. Petersburg, Fla. Bob has become a real farmer, in addition to his extensive goldfish and aquatic plant enterprise, and reports harvesting 600 bushels of apples this past year. He is married and has a six-year-old daughter, Patricia Helen. — Miles M. Zoller, XV, Vice-president of Eagle-Picher Lead Company, Cincinnati, reports that his eldest son, Miles, Jr., is now with the same company in Tucson, Ariz. His second son, Jim, has completed two years of engineering at the University of Cincinnati. Miles has two younger sons, eight and two years old.

Frederick W. Adams, X, X-A, has been appointed director of research of the Clark Thread Company of Newark, N.J., and associated companies and is located in the New York offices of the company. Freddie was formerly connected with the Pittsburgh Plate Glass Company in their product development work. In his new assignment he will be in charge of co-ordinating and expanding a research program. — Charles H. Herty, Jr., X, X-A, assistant to the

vice-president of the Bethlehem Steel Company, has been nominated for the office of vice-president of the American Society for Metals, according to a welcome note from our genial Alumni Secretary, Charlie Locke, '96. — William L. Knoepke, VI, is now associated with the American Pencil Company, Hoboken, N.J., as chief cost accountant.

Charles A. Williams, VI, Vice-president of the United Illuminating Company, New Haven, Conn., collaborated in the preparation of a paper on "Reverse Refrigeration Applied to a New Haven Office Building," which was presented during the program of the St. Louis summer technical meeting of the American Institute of Electrical Engineers. — Edgar E. Hume, VII, a brigadier general, is chief of the Allied Military Government in Rome.

Josiah D. Crosby, X, visited the induction heating laboratory of Federal Telephone and Radio Corporation recently, but your Assistant Secretary missed seeing him. To Josh and any of the brothers who are in the vicinity of Newark, go our cordial invitations to drop in at 591 Broad Street, telephone Mitchell 2-5942, for lunch or business or both. When and if we can be found at home, the address is 215 Linden Avenue, Glen Ridge, N.J., and the telephone is Glen Ridge 2-8517-R. Your Assistant Secretary regrets to record the passing of his mother in August. Many of the Class will remember her from our Cambridge days. Ray St. Laurent, Bill Rose, and your scribe got together for a session during one of Ray's flying trips. It was recalled that, as the managing board of *The Tech*, we had started the *Tech Engineering News* on its career just 25 years previous. A toast was proposed to the fourth estate in the hope (a) that the magazine is still alive and the venture still profitable; (b) that the present editors know that they have an anniversary to celebrate; and (c) that they won't take it out on us for initiating their headaches.

Mail for our 140 members of the armed forces will be re-addressed if it is sent to the Alumni Office at Cambridge. Excluding military personnel, the following are among the address changes received this summer: Tristram J. Campbell, II, Edge Park Road, Six Acres, White Plains, N.Y.; Malcolm P. Canterbury, I, 2334 N. Calvert Street, Baltimore, Md.; Philip W. Clark, XIII, 28 New London Road, Mystic, Conn.; Joseph W. Gartland, X, X-A, National Carbon Co., Box 6087, Cleveland 1, Ohio; A. Warren Norton, XV, Press Wireless, Inc., Times Square Building, New York, N.Y.; Harry M. Ramsay, XV, Cambridge House, Fort Hill Village, Scarsdale, N.Y.; Hugh D. Seaver, IV, 3901 Langley Court, McLean Gardens, Washington, D.C.

To those within our shores, we extend hearty Thanksgiving cheer in the hope that our victory may soon be complete. To those beyond the seas, may this Christmas and the New Year speed your safe return. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, Federal Telephone and Radio Corporation, 591 Broad Street, Newark 2, N.J.

1922

We are working on the class directory and hope to have it ready for distribution some-

time in November. The idea apparently appeals, because over 300 replies to the questionnaire have been received and also a number of letters expressing interest in the project. — Incidentally, don't forget the Alumni Fund.

Congratulations go to R. A. Stone, II, of Cumberland, Md., on his recent marriage to Marion A. VanDyke of Irvington-on-Hudson. Stone has two sons whose mother died eight years ago. The oldest, William, 18, is in the Marines, and Frank, 15, is in high school. Stone is in the plant engineer's office of the Celanese Corporation and invites all '22 men to pay him a visit.

Jack Halpin, now a commander in the Navy, recently wrote to Al Glassett, "A lieutenant colonel came seeking a favor a few days ago. I asked his name and he replied, 'Brokaw.' I mentioned that I had gone to school with a man named Brokaw. He asked, 'Where did you go to school?' and when I said, 'M.I.T.," he remarked, 'I graduated from there in 1922.' Brokaw got his favor."

Coincidentally Chuck Brokaw wrote Don Carpenter as follows: "It has been a long while since I have been able to find time to write a few of the friends at home. We have been quite active recently delivering your products to the Nips, and they haven't flourished on the diet. It seems we have established some kind of local record for assisting the little yellow guys to join their ancestors in what is left of their sun. Too bad this damnable terrain doesn't give us an opportunity to catch them in the open. We will catch their navy one day, though, and then memories of the Golden Gate will be dusted off. The hardships here are all that you must have heard, the climate and assortment of jungle pests being more severe than the enemy. As for me personally, all I can officially complain of is a bit of jungle rat and a flock of fleabites. Give my best regards to any of the fellows you see."

We regretfully report the death on June 22 of E. Francis Gallagher, IV, from a sudden heart attack at the School of Military Government, Charlottesville, Va. In 1930 Gallagher was made secretary of the Brick Manufacturers' Association of New England, and in 1935 became associated with the New England Brick Company. In August, 1942, he was commissioned a captain in the Army Corps of Engineers, having numerous assignments, including a seven-months' course at the Command and General Staff School at Fort Leavenworth. He had reported on June 8 for a seven-months' course in Far East civil affairs at Charlottesville. He was a member of the Boston Society of Civil Engineers, of the Solely Masonic Lodge of Somerville, and of the finance board of Winchester, Mass., where he lived. He leaves his wife, now living in Gilmanton, N.H., and three children. The Class sends its sincerest condolences to Mrs. Gallagher and the children. — CLAYTON D. GROVER, *Secretary*, Whitehead Metal Products Company, Inc., 303 West Tenth Street, New York, N.Y. WHITWORTH FERGUSON, *Assistant Secretary*, Ferguson Electric Construction Company, 204 Oak Street, Buffalo, N.Y.

1923

I get occasional letters from men in the service, but these are less frequent than I

should like, and if I were more diligent in writing, I might perhaps get some replies. With some 1200 former students and probably half of them in the service, I am deterred by the magnitude of the task of writing all of them. I did write a personal letter to George H. Southard, a major in the engineer section of the Service of Supply, and got a reply from him that showed he was in New Guinea. From his report I could get no glamor. Apparently, for officers anyway, war in New Guinea is just like war in Washington or anywhere else — paper shuffling.

Martin H. Burckes, a lieutenant colonel in the Army, wrote on June 1 that he had just received the April issue. He says: "I am adjutant general of this infantry division and have been since its activation at Camp Gruber, Okla., on July 15, 1942. At present I'm somewhere in Italy and on the move quite a little. We are now near an old abbey, which dates back to about 1065, I believe. There is a hydroelectric power plant beside the building I am using for an office. The Germans endeavored to destroy it, but there was enough left to start up one generator within a day after the men began repairs."

I hear regularly from C. P. Thayer of Miami, who is secretary of the local M.I.T. club and in August mentioned three successful meetings of the club. — Leslie W. Powers dropped in to see me in June, but we missed each other as I was out of town. He is assistant secretary of the Buffalo Insurance Company, Buffalo, N.Y. — Lem Tremaine reported a new office address, which I am late in passing along — 37 West 43d Street, New York, N.Y. He is an insurance engineer.

The Chicago *Tribune* in June announced that Joseph P. Keegan had become sales manager of the central region, Fleischmann division of Standard Brands, Inc., with which Keegan has been associated since 1924. — Robert J. Hull, according to the New York *Journal of Commerce* in June had been named manager of the New York division of the Cities Service Oil Company of Pennsylvania. Hull will have charge of the marketing operations of the company in 11 Central Atlantic States.

The Alumni Office reports the death on June 2 of Captain Clyde P. Matteson, of Laramie, Wyoming. — A testing laboratory and wind tunnel dedicated last spring by the Boeing Airplane Company in Seattle, Wash., was named the Edmund T. Allen Memorial Aeronautical Laboratories. Allen, killed last year, was a famous test pilot whose interest in flying dated back to his days at Technology. — HORATIO L. BOND, *Secretary*, 457 Washington Street, Braintree 84, Mass. JOHN M. KECK, *Assistant Secretary*, 207 Bloomfield Avenue, Bloomfield, N.J.

1924

To you all, a hearty greeting and a quick swing around the class circuit to start the new season. *Time* reports that Denton Massey, a group captain in the Royal Canadian Air Forces, now back from Britain, is taking his old seat in the Canadian House of Commons. The San Francisco *Chronicle* credits Frederick Terman from Stanford, now in charge of the Radio Research Laboratory at Harvard University, with being one of a group of scientists who

have produced what Hitler calls "the one single technical invention which checked U-boat sinkings of Allied shipping." The *Atlanta Journal* reports the death of Tom Moodie, former professor of aeronautical engineering at Georgia Tech, inventor of the "road plane," and Executive Vice-president of Aviation Engineering, Inc. — Recent visitors to Cambridge include Royce Greatwood, China resident and oilman for many years, now a Navy lieutenant on Lord Mountbatten's staff in New Delhi; and Hank Simonds, chief engineer in the Merchant Marine, veteran of many crossings of the Atlantic and Pacific, of the run to Murmansk and through the Indian Ocean, and survivor of the torpedo sinking of the transport *President Coolidge*. — Charlie Locke informs us that Basil Zavoiro, of the department of petroleum economics in the Chase National Bank, has opened offices as a consulting petroleum geologist and engineer at 220 East 42nd Street, New York; that George Swift received his doctor's degree in metallurgy in February and resigned from the Institute staff in June to take up personal consulting practice at his home, 40 Colonial Avenue, Waltham; that Mr. and Mrs. Robert Le Clercq announce the arrival of Jeffery Lynn in June.

From Anatole Gruehr, our favorite correspondent covering the New York area, comes this letter: "... As you know, we used the occasion of the annual outing of the Technology Club of New York to get our Class together at the Scarsdale Golf Club on Wednesday, June 28. Although notice was short, 16 of us managed to get to it. Bill Keplinger, Frank Manley, Greg Shea, and Henry Zeiger spent the day playing golf. Bill actually came in second for the Club as a whole. The rest of us got to the 19th hole in the late afternoon. Before dinner, Ed Sheiry got a prize in a putting contest. Incidentally, Ed has just quit a teaching career and has gone into consulting work. Super-super cranes are a new outlet for his talents. Others present were George Arapakis, Willard Blaisdell, Frank Di Somma, Pret Littlefield, Tom Mattson, Raz Razzack, Wink Quarles, Nat Schooler, John Whittington, Ed Wininger, and your unworthy correspondent. Ray Hamilton and Ed Jagger were out of town. Tom Mattson has recently arrived from the Middle West. He is engaged in all sorts of financial wizardry in the same building and on the same floor where Ed Sheiry's new office is located. It took a reunion in Westchester for them to find out they were close neighbors in New York. Wink Quarles has recently secured his release from the Army (as lieutenant colonel, no less) and is with McGraw Hill Publishing Company. Ed Wininger has just acquired another construction concern. Greg Shea is the proud father of Greg, Jr. He is manufacturing some radio stuff for the Government at Stamford, Conn. A letter was read from Bill Correale, a major now at Fort Sam Houston, Texas. A few days later we had a small mixed party at Razzack's home in West 11th Street. To show his broadmindedness, Razzack included the Muesers and Dandrows, on the theory that 1922 was almost a sister class, anyway. Since Raz definitely expects to leave for India shortly and Mrs. Razzack is moving temporarily to an apartment, no

one cared about the neighbors and George Dandrow was allowed to sing." — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston 7, Mass. GEORGE W. KNIGHT, *Assistant Secretary*, 36 Arden Road, Watertown 72, Mass.

1926

The first item I find in the class notes folder is an announcement that Eliot N. Bidwell has been appointed vice-president in charge of the industrial supply division of the Bidwell Hardware Company, Inc. Eliot has been advertising manager and an executive in the sales department of the Whitney Chain and Manufacturing Company for 14 years and previously was in the engineering department of the Fafnir Bearing Company of New Britain, Conn. He was one of the organizers and members of the Industrial Advertising and Marketing Council of Western New England and during the past year has been first vice-president. — Still another clipping announces that Theodore Taylor of East Orange, N.J., is the new chief of the engineering division of the Specialty Products Shops of the Western Electric Kearny works. The clipping notes that Theodore is a man with many and varied hobbies, including sailing, model railroads, and astronomy. He has two sons.

The summer brought still other news about the professional advancement of our group. Hugh C. Lord, patent lawyer of Erie, Pa., announces that Ralph Hammar is now associated with him in the practice of patent and trade-mark law. Ralph attended George Washington University Law School and prior to his new connection was with the patent department of the General Electric Company. — In the May monthly supplement of "Who's Who," there is a biographical sketch of James Harrington Boyd, Jr., assistant manager of the chemical products department of Phillips Petroleum Company of Bartlesville, Okla., and assistant to the president of Hycar Chemical Company, Akron, Ohio. — A release from headquarters of the European theater of operations of the United States Army lists M.I.T. graduates who are now members of the Army Transportation Corps. Two of this list of five are '26 men: Major Arthur C. Fuller, marine maintenance and repair engineer at invasion ports and Captain William H. Hoar in the Railway Grand Division. If this list were extended to all of the Army's theaters, more '26 men would be included, but security reasons probably prevent this at the present time. — Edward S. Hope, superintendent of buildings and grounds at Howard University, last May became the Navy's first colored lieutenant.

Elmer C. Warren, a major in the Air Forces, is stationed at headquarters of the Redistribution Center at Atlantic City, where he is assistant chief of plan in the command there. — Henry C. Gunning spent the summer at Kimberley, British Columbia, engaged in geological work for the Consolidated Mining and Smelting Company. — Alan E. Cameron is president-elect of the Mining Society of Nova Scotia. He received his D.Sc. degree with our Class, although his undergraduate work was taken at McGill. — Mr. and Mrs. Juan E. Chaudruc, the former Dorothea B. Kindler of Seven Bridges, Chappa-

qua, N.Y., announce the birth of a second child, a daughter, Lusandre, on July 10. — JAMES R. KILLIAN, JR., *General Secretary*, Room 3-208, M.I.T., Cambridge 39, Mass.

1927

During the summer your Secretary found out that a good way to get a letter from a class member is to make a misstatement about him, as evidenced by the following from Captain F. W. Willcutt of the Marine Corps: "Your news item in the May issue of *The Review* referring to yours truly as 'an Army captain' provokes me to write and enter a correction. It is 'Marine captain' instead. I entered into active duty with the Marine Corps on last November 3 and leave tomorrow for duty overseas. You might be interested to know that Jim Flagg and I, both Class of '27 Betas, are now both captains in the Marine Corps. Are there any other '27 men in the Marines?"

The following interesting note was received from G. Albro Hall, a captain in the Army: "The urge finally caught up with me while 'down under.' For a time I was stationed in Sydney and Brisbane, Australia, but now it's farther north in the southwest Pacific. I have only praise for those cities. This jungle life is rugged, but the luxuries of life become more and more evident. The rains, heat, humidity, and infinite variety of insects are extras I never bargained for in this contract (call my lawyer). These natives where I'm located are an interesting group. They're small of stature, averaging about five feet two inches, but very bright. The men are a friendly bunch — a sort of happy-go-lucky crowd, singing and jabbering away at their work. They're all supervised by an Australian organization. It's an alphabetical setup, but a tremendous amount of labor is the result. Never have I been in a place where money has so little use. If it weren't for poker and red dog, I'd lose that feel. So far I haven't run into any Alumni luncheon meetings in this theater. While assigned to the depot, I'm to be placed on temporary duty occasionally and travel about the southwest Pacific making inspections and reports along sanitary lines. It looks intriguing, at least from the environs of my thatched hut. These huts are most comfortable. Even during a recent three-day rain which exceeded a year's precipitation there in the States, I kept dry while beneath its roof — but try to do as well when working outside!"

Hank Kurt is keeping busy at Grumman Aircraft, Farmingdale, L.I. — Anson Rosenthal is a sergeant at the Aberdeen, Md., Proving Ground. — Bud Cole, erstwhile Class President, checks in from Lockheed Aircraft, Burbank, Calif. He says there are 60 Technology men at this factory, but he is the only one from our Class. They hold M.I.T. meetings every two weeks.

We regret to advise that the death of Frank Orville Potter of Melvin Mills, N.H., occurred over a year ago. Frank was in Course X. We are also sorry to inform you of the death of Walter Carl Schuler of George Schuler and Company, 515 Madison Avenue, New York, N.Y.

Alf Berle reports that the Class has fallen down quite badly in its support of the Alumni Fund. This is clear from the following: The total of all classes has reached 66 per cent of its quota in amount of contri-

butions and 74 of its quota in number of contributors. The 1927 percentages are 56 in both categories, which prompts Alf to say: "1927 did much better last year. Why not \$15 per man from all 873 of us this year?"

Here follows a list of class members who have recently been promoted in the armed forces, with their new ranks: Lieutenant Colonel Harry B. Cuthbertson, Colonel William R. Gerhardt, Captain Edwin H. Himrod, Captain Leslie A. Kniskern (Navy), Major Eugene B. Lunden, Lieutenant Commander Francesco Marcucella, and Lieutenant Colonel Charles C. Smith.

A few new addresses follow: Stuart J. Bugbee, Post-office Box 100, Richland, Wash.; Colonel Albert H. Burton, Corps of Engineers, 270 Broadway, New York, N.Y.; Dr. George B. Darling, 1036 31st Street, Northwest, Washington, D.C.; Colonel Leo J. Dillon, Coronado Hotel, St. Louis, Mo.; Dudley S. A. Young, Canada Wire and Cable Company, Ltd., Post-office Box 340, Toronto 1, Ontario, Canada. — JOSEPH S. HARRIS, *General Secretary*, Aviation Department, Shell Oil Company, Inc., 50 West 50th Street, New York 20, N.Y. DWIGHT C. ARNOLD, *Assistant Secretary*, Stevens-Arnold Company, Inc., 22 Elkins Street, South Boston 27, Mass.

1929

We have very little news in spite of the several months' lapse since the last issue. What there is, however, is both good and bad. The bad is our record in Alumni Fund contributions. We are way below the average in percentage of quota by contributors; in fact the lowest average up to the Class of 1929. In amount, the percentage of quota is also low, but not quite so bad as in percentage of contributors. Let's see if we can't pull this up, and promptly.

Most of you have no doubt seen the press releases on Waldo Kenerson, who, by virtue of his own ingenuity and the help of a few thousand Chinese coolies, has built the air base from which the initial B-29 bombers took off for Japan. A lieutenant colonel when last reported, Waldo is probably off to bigger bases and nearer Tokyo.

I received this morning a letter from George Crandall, a major in the Quartermaster Corps, who reports that he is at present commanding officer of a Quartermaster battalion on Guadalcanal. George reports that their greatest danger at present is dodging coconuts and that the climate on the Island is not so bad as newspaper men would have it. He allows as how he is planning to go back to Wyoming when the war is over and do himself a bit of hunting and fishing.

A note from Ralph Atkinson in July from Los Angeles reports that he is in business for himself, manufacturing and distributing photographic chemicals and from all reports doing well. — Another note reports George Cudhea as chief engineer for the Fleetwings Division of Kaiser Cargo, Inc. George was elevated from the position of assistant chief engineer.

A couple of corrections in the last issue's notes should be mentioned. Ed Tittmann is at the East Helena Works of American Smelting and Refining Company, rather than the Garfield Smelter, as reported, and we find that Bill Slagle, in addition to his

multitudinous duties in the Chemical Warfare Service, is still in the restaurant business. My apologies.

More letters mean more news. How about you fellows dropping me a line? — EARL W. GLEN, *General Secretary*, 2300 Ridge-wood Road, Akron, Ohio. FISHER HILLS, *Assistant Secretary*, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

1931

The summer months were not productive of a great deal of news, but in August we did receive one very interesting letter from Fred Nordsiek, which follows: "Every summer I go to New England for vacation, and while there I usually meet some classmates. This year I was on Martha's Vineyard. Walking down the street in Vineyard Haven one day, whom should I see but Joe Ferrucci! He was taking a brief vacation from medical practice in Framingham and had come over to the island for the day with his family. Summer before last, in July, 1942, I was in the White Mountains. One night at Lakes-of-the-Clouds hut, atop Mount Washington, I saw a guy I was sure I knew, but couldn't place. I told my wife about it, and during the night she got together with the other fellow's wife in the girls' bunk room and learned that he was John Olsen. We had a get-together at breakfast. John's very young daughter, who, as I recall, was then about six, had climbed Washington with her parents. Later that week I was alone in the Osgood Trail, also on Mount Washington. As I crossed the Peabody River, I saw two men getting ready for a swim. I asked them for the time, and when they looked up at me on the bridge, I felt sure that one of them was Arthur Lutz, but as he didn't recognize me, I kept on. After ascending the mountain for a way, I ate lunch and then returned by the same route. At the river the two men were just leaving. This time I asked Art if it were he, and it was! He was then, just two years ago, a major in Army Ordnance, and was enjoying a brief leave. I have recently been in touch with Stan Deake, who was training as a communications officer for the Navy, with Bryce Prindle, who was doing food work in a civilian capacity for the Army Quartermaster Corps, and with Wendell Currier, who was still with Campbell Soup Company. I have recently observed my first anniversary in the department of applied research at the home office of Standard Brands, Inc."

Many thanks to you, Fred, and I hope we shall receive more information of this sort in the coming months. Fred's address is 29 West 64th Street, New York City. I notice that the accomplishment of John Olsen's young daughter made quite an impression on Fred. The fact that the young lady climbed Mount Washington and is only six years old is something which I suppose does make Johnny feel rather proud. I wish to report on an accomplishment of my young daughter, who is now three years old and climbed Mount Battie in Camden, Maine, this past summer. Mount Battie, of course, is not any Mount Washington, but a child three years old is not a child six years old. Maybe the proud papas should form some sort of a mountain climbing organization to display the prowess

of their offspring. In any event, it would be interesting to hear from more of our classmates with respect to the accomplishments of their families, even though they may be too modest to discuss their own. While talking about accomplishments, I should like to record the addition of one daughter to the Steverman household on June 28. This makes two daughters, Faith, aged three, and Hope, four months.

L. W. Johnston spent his vacation with his wife and daughter at his parents' home in Holliston, Mass. He reports that he now considers himself definitely settled down on his job at Perth Amboy; he has bought a house, and his new address is 19 Hollister Place, Fords, N.J. — An announcement has been made by Mrs. Frank W. Wetherbee of Newtonville of the engagement of her daughter, Helen Wetherbee, to Elliot F. Childs. Our latest advice showed that Childs is living in Waltham.

Laurence C. Hicks was recently appointed metallurgical engineer and associate director of research in the magnetic products division of the Allegheny Ludlum Steel Corporation at Brackenridge, Pa. Dr. Hicks has been with the company in its research department since 1933 and since 1936 has been doing research on materials for the electrical industry. — The Hamilton Standard Propellers division of United Aircraft Corporation at East Hartford, Conn., has announced the appointment of Carl F. Baker to chief engineer, in which capacity he will have responsibility for all activities of the engineering department concerned with production, including inspection, metallurgy, installation, liaison, and license co-ordination. Carl joined United Aircraft Corporation as a test engineer in September of 1933. Since then he has been closely associated with activities of the Army Air Forces.

As a closing note, we wish to remind those of you who have not sent in your contributions to the Alumni Fund that you had better get out the letter that has been lying on your desk for the past few months and do something about it. Our Class has never been in line to receive any medals for meeting our quota on the Fund, but the latest statistics show that we are running a pretty hot race for last position this year, and we know we can do better than that. — BENJAMIN W. STEVERMAN, *General Secretary*, 11 Orient Street, Winchester, Mass.

1932

Starting another volume of The Review, the Secretary of your Class wants to say hello. We will promise to see that all news you send us will reach these columns, though there may be a delay of about two months due to the publication schedule. My work at Bakelite Corporation keeps me busy, as we have our share of wartime difficulties. Since we have not written many letters in the past year, we understand why most of you fellows haven't written. In your case, though, one letter to me will be read by some 200 members of our Class. Doesn't that sound worth while? — If you haven't sent your check to the Alumni Fund, now is the time. An interim report from Chick Kane showed that 182 members of the Class had contributed \$1,584 so far this year. This was only 55 per cent of our quota for number of contributors and only 48 per cent of our quota for amount

to be contributed. We can do better than that.

Roderick Macdonald wrote to the Alumni Association that as of October 1 he was being transferred by the Department of Munitions and Supply to the staff of War Assets Corporation, a Canadian Crown company, organized to control and dispose of wartime surpluses. He wrote that three divisions of this outfit, namely aircraft, radio, and technical, will become his particular headache. — Richard Husted has been appointed manager of the Washington office of Curtiss-Wright Corporation as of last June 15. The clipping which brought us this news also said: "He joined the Bureau of Air Commerce, now the Civil Aeronautics Authority, in 1935 and later went with Wright Aeronautical Corporation." — In the South Pacific area last May, Robert M. Loeb of Rochester, N.Y., was promoted from captain to major. He has been on active duty with an ordnance battalion since January, 1941. — Raymond K. Flege, a research associate at the Institute in 1931-1932, has been appointed director of research for the North Star Woolen Mills Company of Minneapolis and the Lima Woolen Mills Company of Lima, Ohio. Before becoming associated with North Star, he served as a chemical engineer with the Kendall Mills, finishing division of the Kendall Company. — CLARENCE M. CHASE, JR., *General Secretary*, 1207 West 7th Street, Plainfield, N.J. *Assistant Secretaries*: CARROLL L. WILSON, 1530 P Street, Northwest, Washington, D.C.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

1934

The tenth annual class reunion proved a grand success. It was held at Ye Castle Inn at old Saybrook, Conn., on the week end of June 3 and 4. Forty-five of our brethren turned up, prepared to renew old friendships and enjoy themselves to the utmost. The weatherman provided two glorious days and a chance to obtain a raw sunburn, of which many took advantage.

During the afternoon a program of sports was held which consisted mainly of a softball game between the fathers and non-fathers but also included a tennis match and a golf match. Al D'Arcey won the tennis trophy for the second time and also took the golf prize away from Charlie Sheehan, who was temporarily out of the running with a gimpy leg. The ball game closely resembled the invasion of Normandy and was almost as closely contested. Heat prostration was prevented only by the presence of two kegs of iced beer, placed conveniently at the sidelines where the weary contestants could crawl between innings. After the ball game almost everyone climbed into his bathing suit and took a refreshing dip in the surf.

The evening banquet was a real shore dinner, deliciously cooked. At the end of the meal your Secretary made an attempt to say a few brief words of acknowledgment for the splendid job the committee had done in organizing and running the affair, but the applause was so great each time he opened his mouth that he could get hardly a word in edgewise. After dinner, we were diverted by a troupe of entertainers from Boston. Then gradually, through the various small hours of the night, the boys got

to bed. Next day the energy level was so low that almost everyone was quite content to bask in the sun in deck chairs and swap stories.

The success of the reunion can be attributed to the four men who arranged and managed it from the start — not an easy thing to do during wartime, but they did a grand job. Bob Becker organized the program and secured the entertainment. Hank Backenstoss attended to finance and selected a souvenir. Johnny Hrones handled the publicity, and Les Doten made the selection of a hotel. Now we can look forward four and a half years to another reunion of equal conviviality.

Carl P. Stratton writes that he is at the same old stand and extremely busy as assistant superintendent with the American Smelting and Refining Company at East Helena, Mont. He added another boy to his family last year. — Walter R. Hedeman gives us a report in triplicate. Triplets were born to his wife on D-day. Walter is with the Bendix Corporation in Baltimore. The Hedemans also have a three-year-old son. — Bill Schumacher writes to say he is the proud papa of a baby boy, William Wesley, born July 18 weighing seven pounds, nine and a half ounces.

G. Barker Hulett left the Basic Magnesium Company in May and went to work for the American Bitumuls Company in San Francisco, starting in the central research laboratory. This company is a subsidiary of the Standard Oil Company and makes asphaltic emulsions for roadways and airports, and also special fireproof paints, paper sizing, pipe coatings, and various products based on asphaltic emulsions. He now has two children, a girl and a boy.

Win Reiss was recently promoted to the rank of lieutenant colonel in the Engineers. His address is A.P.O. 512, New York. — Howard Reichart was married in Rochester, N.Y., on June 10 to Elisabeth Ellinwood Frost, daughter of Ellinwood Alden Frost and the late Mrs. Frost of Rochester. Howie is an engineer with Carbide and Carbon Chemicals Company in New York City.

Rusty Hastings is chief engineer for the Lewis-Shepard Company in Watertown, Mass. He is responsible for the design of a wide variety of material-handling equipment. A large proportion of the equipment made must be designed for a specific job, and the design is not used again. Therefore, the design must be right the first time. Rusty has knocked out an excellent batting average. — JOHN G. CALLAN, JR., *General Secretary*, 184 Ames Street, Sharon, Mass. ROBERT C. BECKER, *Assistant Secretary*, 169-49 24 Avenue, Flushing, N.Y.

1937

Greetings from one old-timer to all you old-timers of 1937 — seven years! "Seven years with the wrong —" No, I guess not. As a Class, we are certainly cutting a wide swath, not only in industry, business, and, most important now, war but also in comparison to other classes in our participation in the Fund. The preliminary results are gratifying to say the least — we are outstanding in the number of contributors and high in the amount contributed. Keep it up! I hope to have plenty to gab about this year, and anyone in the New Jersey area is

welcome to gab with me at any time." — WINTHROP A. JOHNS, *General Secretary*, 34 Mali Drive, North Plainfield, N.J. PHILIP H. PETERS, *Assistant Secretary*, 159 Glen Road, Wellesley Farms 82, Mass.

1938

These notes begin another class year — our seventh since graduation. As is usual in the first notes of the fall, there have been quite a few happenings of interest since last spring. One big item was the announcement of Dick Muther's engagement. His fiancée is Barbara Brown, a Wellesley girl from Detroit, and they are hoping to be married sometime in the fall. Dick is in the Navy and stationed in Washington. Blaine Fairless' engagement to Catherine Sproul of Philadelphia was also announced last July. He is a lieutenant in the Marines and had been in the South Pacific for a year. Other engagements of particular interest are those of Patricia Hopkins of Newark, N.J., to Ben Thompson, Jean Shugert of Pittsburgh to Bob Kingsbury, who is an ensign in the Navy, Mary McElligott of Manchester, Mass., to Jack Cunningham, who is stationed at Camp Breckinridge, Ky., and Muriel D. Saipé of Brookline, Mass., to Mel Feins.

David Morse, a private first class, was married last February in the Waldorf-Astoria to Geraldine Cohn of New York. Victor Starr was married in July to Joanne Gerould of Cambridge, Mass. Victor is now an assistant professor at the University of Chicago. — We received a pretty pink-edged card from Dick Bartels, a captain in the Chemical Warfare Service, announcing the birth last June of Mary Catherine. We have heard also indirectly from Bart Myrick that his wife had a fine baby boy last November. He is working for Brewster Aeronautical and lives near Philadelphia with his wife, little girl, and new son.

Ira Lohman and his wife stopped at your Secretary's several times last summer. Ira is a captain in the Coast Artillery, stationed at Camp Davis, N.C. He expects to go overseas soon. Both he and Louise look very well. — Ian MacKenzie is an ensign in the Navy and is working at the Mine Warfare Test Station in Maryland. — We have learned that Fred Dent is a colonel in the Air Forces. He was awarded the Silver Star for gallantry as air commander of a heavy bombardment division on a mission over Germany. He had previously received the Distinguished Flying Cross. — Dean Vanderhoef, then major, now lieutenant colonel, was in charge of a battalion that spearheaded the attack across the Cherbourg peninsula to cut off the German retreat.

Louis Bachmann is a first lieutenant assigned to the Marine Corps Air Station in Santa Barbara, Calif., as personnel officer. He had previously served almost 16 months in the South Pacific as ground officer with a fighter squadron. — Abbott Byfield has been connected with the chemical engineering branch of the National Defense Research Committee for over two years and he is now on Oahu in the Hawaiian Islands, as a technical observer. He writes: "We are busy seven days a week, but we find time for an occasional swim or other amusement. The island still has a 10:00 P.M. curfew and everyone must be off the street. Consequently stores close early, movies begin at 4:30 P.M., and everyone plans to start home

at about nine o'clock. Our evenings are spent reading, writing, and playing cards, and we manage to have some good bridge, poker, and gin rummy games.

We are very sorry to hear that Daniel Spengler, a colonel in the Corps of Engineers, was killed in action in Normandy on July 8. He is the sixth member of our Class to make the supreme sacrifice. — Charlie Maak is living on the West Coast. He had been with Lockheed until last fall, when he took a job as metallurgist for Menasco Manufacturing Company. The Maaks have a little son, born last fall, and they report that he is coming along very well. — DALE F. MORGAN, *General Secretary*, Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York, N.Y. ALBERT O. WILSON, JR., *Assistant Secretary*, 32 Bertwell Road, Lexington 73, Mass.

1939

In June we heard that Frank Baker, II, had become engaged to Adelaide Hotop of Laurel, Long Island. Frank was reported as having returned, after a short furlough, to overseas duty. John F. Allen was married last February to Ruth Blanchard, also of Long Island. The event took place at St. Stephen's Church in Port Washington, and the bride was a lieutenant in the Women's Army Corps. At Smithtown, Long Island, Dave Kenyon was married in January to Phoebe Ruth Dartnall of the Women's Royal Naval Service. Dave is with the Sperry Gyroscope Company, Inc.

A Red Cross dispatch received last May reported that Mabel Stimpson, daughter of Dr. E. W. Stimpson, had arrived in Hawaii to serve the armed forces as an American Red Cross assistant club director. Until her Red Cross appointment, it continued, Miss Stimpson was with the War Food Administration, Washington, D.C. Previously, she had been with the Infant Welfare Society in Chicago, the outpatient nutrition clinic of the New York Hospital, and the food clinic of the Boston Dispensary. It stated that she is a member of the American Dietetic Association, the American Home Economics Association, and the American Public Health Association.

Leo Kiley, Jr., a major in the Army Air Forces, was scheduled to be married in April at Manchester, N.H. to Luna Hamilton of Presque Isle, Me. Budd Venable was married to Mary Lois Twitty of Mississippi on April 1. And John E. Riley's marriage to Margaret Anne Byram of Wilmington, Del., was set for June 24. John is working as a research chemist with the Hercules Powder Company at Kenvil, N.J. Eli Danenberg has become engaged to Janice Werby of Brookline.

With the deepest concern we learn that Leonard Merrill, Jr., an Army lieutenant, who in March was reported missing in action, was killed last January. Besides his wife and parents, Leonard had two sons, Robert, two years, and Richard, nine months. He went overseas before his younger son was born. — STUART PAIGE, *General Secretary*, 88 Van Giesen Street, Richland, Wash. ROBERT C. CASSELMAN, *Assistant Secretary*, 271 Cypress Street, Newton Center 59, Mass.

1940

Course I fellows will be interested to hear that A. P. Rockwood and I had quite

a session together one evening during the summer. You will recall that Rocky went into the service through the National Guard unit back in Massachusetts, and he has been in over four years now. Those four years have certainly brought lots of experiences to him. Immediately after Pearl Harbor he was shipped out to the West Coast but has been here in the San Francisco Bay area ever since — that is, up until a few weeks ago, when I received word that he is back in Camp Bowie, Texas. Rockwood is a master sergeant and thinks his unit may be transferred into the combat engineers soon.

John Parnell is a radio engineer with Johns Hopkins University, still single. Sol Nathanson has been an aircraft inspector for the British Air Commission since graduation. During that time he has been stationed in Toronto, Montreal, Indianapolis, Detroit, and New York. The Nathansons' daughter was born in Detroit, although Sol and his wife are both Canadians. Bill Kather, a lieutenant in the Army Air Forces, has been instructing in twin engine advanced school at Moody Field, Ga. Bill says he saw Jim Rumsey and his new bride, Jane Stryker, during July. Russ Winslow is senior flight test instrumentation engineer for Boeing Aircraft Company. The Winslows have a baby boy, born in April. Jim McMillin, formerly assistant crew coach at the Institute, is working with Russ now. Russ also speaks of having seen Captain Wes Van Sciver recently when he flew his Boeing Superfortress out to Seattle. Eric Olson, the red-headed ace sailor at the sailing pavilion, has been in Seattle twice on business as field engineering representative for the Lawrence Company of New Jersey and has seen Russ during those trips. Richard D. Gerages, a major in the Coast Artillery Corps, writes that he is patiently and quietly guarding the Panama Canal. Dick was at Fort Monroe, Va., for two years as an instructor at the Coast Artillery school there. During that time he was married to the former Jayne Thayer of Rockton, Ill.

H. E. Hawkes, Jr., is a geologist with the United States Geological Survey working on the government strategic mineral program. . . . Donald W. Ross, an Army captain, has been aide to the Commandant of the Infantry School at Fort Benning, Ga. Erling O. J. Helland has been an ensign in the Naval Reserve since October, 1943. He took his preliminary technical training at Princeton and is now receiving more training at the Institute. Theodore H. Talbot is a research chemist with Federal Telephone and Radio Corporation of Newark, N.J. He writes — and take note, you fellows, of these first lines — "After a pause of about three years, I guess I owe a bit of news to the Secretary. I have been working for Federal since December, 1941, in the synthetic plastics field, but have no experiences to recount that would match those from the gang overseas. I have been attending Polytechnic Institute of Brooklyn at night towards an M.S. degree, which I should like to receive before deciding to take the big step and settle down. The draft, however, will probably interfere before then." Captain David L. Mowrer has been civilian labor administrator for the United States Army in Corsica. Dave will have been overseas almost two and a half

years by now, having been in England, Africa, and now Corsica. Richard S. Mabey is a lieutenant with the Army Signal Corps in Italy.

I've got to get this off to meet the dead line, but there is lots more to come. Tommy Creamer's letter brought considerable results, and I'll write a bit about each of you that sent in a reply. Thanks for the help, but don't let up with news about yourselves and what you are doing. — H. GARRETT WRIGHT, *General Secretary*, 1040 Lombard Street, San Francisco 9, Calif. THOMAS F. CREAMER, *Assistant Secretary*, Apartment 436, 2032 Belmont Road, Northwest, Washington, D.C. JOHN L. DANFORTH, *Acting Assistant Secretary*, Room 24-222, M.I.T., Cambridge 39, Mass.

1942

A glance at the calendar (Varga type, and very nice, too) shows us that that which the fourth estate chooses to call a dead line is approaching and that it behooves us to open our correspondence file to see what has happened to the assortment of characters and other nonentities that comprise the Class.

First, let us delve into the ways of Fred Baumann, your erstwhile scribe — "erstwhile" because Fred has a few more important things to attend to these days than class notes. Fred is a bombardier in a B-29 group or squadron or something. As such, he has appeared before me in Boston and extracted a solemn promise that I would faithfully carry out the duties of Class Secretary. So don't blame the poor lad for what may happen during the coming season. We wish him the best of hunting and hope that he will be able to return and take over this column before too much irrevocable damage is done. Incidentally, the lad has put on a few pounds or so and looks mighty well.

Curt Buford, an Army captain, writes from near London but is probably in France by this time. He states that he is, among other things, a company commander in the Military Railway Service. He sounds as if the trip across the pond had been very eventful, but from that hint you will have to draw your own conclusions. Since Curt is his own censor, he evidently is trying hard not to cheat on himself.

Ben Kingsbury pens us from Detroit that he is still with Chrysler Engineering; in fact he, Jim McClelland, and Bob Seavey all received degrees as master of automotive engineering from the Chrysler Institute of Engineering. All of them have been working there since graduation on such stuff as tanks, trucks, and aircraft development. Seavey got himself hitched some time ago, but Jim and Ben still hold out in Neanderthaloid fashion, digging nuggets where they find them. Ben wants to get in touch with some D.U.'s, so why don't you guys in question drop him a line at 1485 Edison Avenue, Detroit?

Donn Barber, who is still sitting on his little island in the middle of some ocean, has a long tale of woe. . . . He claims that he is neither engaged nor married, so things must be pretty bad. Perhaps some of the old men of the Class could give him a little comfort — either that or their old address book. From Donn comes word that Jack Lacy is strutting his stuff on an aircraft carrier in the Pacific. From the news that

we get, he has been doing some tall strutting of late. Inasmuch as Donn expects to be back in the States with 15 days of leave this fall, we suggest that all keep a weather eye peeled for a well-tanned individual with a wolfish glint.

Jack "T.B." Arend ("T.B." obviously standing for Tavern Belly) has been on the move all summer. He has probably lived in more different places than a traveling salesman (no remarks, if you please) and has finally wound up in Clovis, N.Mex., the biggest little city west of the Mississippi. Early this summer he was in Kansas, and since then he has been trying to find out what happened to Landon. If he finds Landon, he might also try to dig up the *Literary Digest*. They must be buried near each other. Jack expects to be back in Boston to take in the World Series. He may even be able to get back before our 25th reunion.

I am sure that many of you will be interested to learn that contact, of a written nature, has been made with Gangrenous Stempfffff (the 'ffff' as in Ebbs Field). He tried in vain to see me, but let's let him tell it: "I cycled myself from Building 2 to the Tech Pharmacy to the pizzeria and back so many times that I began to feel like an adiabatic batch process. What is more, I was bleary of eye and bearded of chin and kept bumping into Professor Schell, the one man I am still interested in impressing favorably up there. I made three attempts to locate you. . . . Porky O'Neil and I are in submarines, he in the Atlantic and I in the Pacific. Porky is married but possesses no progeny to my knowledge. I am single. . . ." Charlie Stempf also sends along the following vital information. Frank "Hoffschnebel" Sealey is now in charge of all electric light switches at Wright Field. He also plays guard on the football team. He is married to the former Edie Alexander of Newton and boasts, to date, one offspring, male. Bill "Gottlieb" Van Nostrand is doing naval construction work in Charlotte, N.C. "Bottom Bunk" Bruckmann is a purchasing agent for the British and is a well-traveled man by now. "Horrible Hawk" Shaw is still in Army Specialized Training Program medical training at Harvard and should finish any day. "Philthy Phil" Phaneuf is probably a captain by this time and has acquired a reputation as a hard, hard man.

Wenk, the original Sivilian Sad Sack, after six long years at the Institute, packed up his carpet bag, and sallied forth to take up employment with the Socony-Vacuum Oil Company in Brooklyn, N.Y. At present I am working on aviation gasoline. In so doing, I became a brother employee of Bull Christison. Bull is now working for the outfit in Paulsboro, N.J. Earlier this summer Dave took unto himself one Mardie Zabriskie and thus dropped out of café society.

That, I am sorry to state, is the bottom of the barrel. I hope that all you kind people will drop me a line or so in the very near future so that there will be a little to relate each and every month. You send it in; I'll send it out. I should also like to ask those of you who haven't to dip down and send in your contribution to the Alumni Fund. Before the year is out, there will probably be several juicy items appearing in the class notes that will be worth while reading.

Let me also thank those of you who have contributed to the Fund. I can assure you that your action is much appreciated. But do let me know if you break a leg or get married or go on relief or what have you. — FREDERICK W. BAUMANN, JR., *General Secretary*, Orchard Lane, Golf, Ill. KARL E. WENK, JR., *Assistant Secretary*, 11 Ledge Road, Old Greenwich, Conn.

1943

We take pride in noting that we no longer bring up the rear of the class notes, having surrendered that honor to our successor, the Class of 1944. In order to set a stiff pace for '44 I must enlist your co-operation in maintaining a continuous and copious supply of information. Why not get off to a good start by sitting down now and at least sending me your address, even if you are totally lacking in news?

During the summer, the joyous peal of the wedding bells has been heard many times. We announce the marriage of Robert Anderson to Patricia Durbin of Wilmington, Del.; of Dick Zeamer, a lieutenant in Army Ordnance, to Jean Hellens of Shrewsbury, Mass.; of Paul Coulson, who is with Chance Vought Aircraft in Stratford, Conn., to Helen Torbert of Maplewood, N.J.; of Sid Hall, a lieutenant in the Army Air Forces, to Beatrice Barker in Washington; of Ben Muzzey to Elaine Ziebarth in Carey, Ohio, with their present home in Dayton; of Myron Schoffner, a lieutenant in the Army, to Beverly Jean Fairweather; of Raymond Richards, a lieutenant in the Marine Corps, to Randi Christophersen; of John O'Meara to Claire Richter; of Stephen Higgins, Jr., a lieutenant in the Army Air Forces, to Eleanor Baldwin; and of Bill Post, an ensign in the Navy, to Mrs. George Cookman.

A few have declared their intentions but had not, at latest information, tied the wedding knot. Among these are Mortimer Feldman and Gloria Kotler, also Charles Duboc, an ensign in the Navy, and Barbara Dangerfield. — Dara Antia is headed for India, where he will be a metallurgist for the Aluminum Production Company of India, Ltd. — Hans Haac spent a few days in New York before heading for Camp Reynolds and thence to parts unknown. — Apologies and a correction are due from me, for I read in the July issue of *The Review* that Curt Smith "is now a lieutenant in the Coast Artillery." This statement is quite wrong, for Curt is still with the Ordnance Department but is now stationed at Fort Miles. My apologies for this error. Incidentally, I have a note from Curt, who says, in part: "Bob Gunther is expecting an overseas assignment in the Army Transportation Service." He also includes an item of the greatest import: "Barbara Demarest and I are to be married on the 23d of September in the Brown Memorial Church in Baltimore."

At last, firsthand news is available from Jim Spitz, a Navy lieutenant, who has written: "I am in my eighth month with the Navy in the South Pacific, and after a hitch of that duration in the so-called glamorous South Seas, the old days at the Institute seem very good, although very far away. I have spent the greater part of this tour of duty with a naval air outfit, and needless to say, it has been an interesting experience, although a far cry from our

expectations back in the days of the 10-29 ordeal! At any rate, it should be good for a few stories at some of our future class reunions. On the West Coast last December, just prior to boarding a troop ship to come out here, I ran into Van Clark, the old Course XV impresario. Once aboard the ship, I bumped into Ken Warden, who was at that time a second lieutenant in Army Ordnance, and we saw a good bit of each other on the way out. Except for those two and the boys I occasionally ran into during my nine months in the 'Stateside' Navy, I've managed to get completely out of touch with M.I.T. This particular island seems remarkably free from Tech men, at least of our generation. Recently I received a letter from Monk Brown '42, now an Air Forces major at the Pentagon, and he told me that Joe Tankoos, erstwhile party boy, is now driving an ambulance in Italy for the American Field Service. That pretty well completes the news I am in a position to give. I should greatly appreciate news of our Class, and letters which any of my classmates might care to write will be most gratefully received. I hope to be off to a carrier or the Central Pacific shortly, but mail will catch up eventually."

Charlie Crocker writes from London: "As you now read in the papers, life in London is quite exciting. More about this when the war is over! Life in England in general is very pleasant. . . . I have done a fair bit of traveling and have seen almost every corner of Britain. I think I found Scotland, and Edinburgh in particular, the most charming and fascinating places of all. I have never been treated more kindly by strangers than in Scotland, and that is saying a good deal. The weather also was unusually good while we were there. . . . I have seen no contemporary Alumni here, but I am keeping my eyes open, for there must be some around. What has become of Gus? I wrote him some months ago and have not heard from him; at that time he was anticipating going overseas. Another poor correspondent is Jerry French — where is he? I have also lost track of Jim Leader, John Harsch, and Russ Bowen. My work continues along the same line as in the States, and I enjoy it. We are very busy and often work well beyond midnight, but seldom mind, the work is so interesting and the associations so companionable. I plan soon to spend some leave on a one-week lecture course at Oxford given for allied officers. It includes such things as English history, government, politics, current events, music, and literature and should be very pleasant."

Yes, just where are Jerry French, Jim Leader, Johnnie Harsch, and Russ Bowen? Somebody who may see them, tell them that the United States Mail is still functioning and that even I still have a mailbox. We should like to know what you lads are up to and where you are. Of Gus Smith, however, news is at hand, for he wrote: "It has been some time since I so much as sat down to begin a letter, and even now little good can come of it, except that I shall have the sheet ready when I get wherever this ship is taking me. The last time I saw you I didn't know what kind of job I was headed for, and in a way I still don't know, although I can tell you what the position is supposed to be. I am the assistant S-2 of an engineer combat battal-

ion. I should rather, of course, have a platoon, but I can't complain too much about the present setup. We have good men on the staff, and it is a pleasure to work with them. Also, having a staff position puts me where I can better see what the entire battalion is up to. I will say one thing about a combat battalion. It is no place for a person schooled in such subjects as probable error. There are exactly two officers who know what 12 ± 2 might mean, and there is no one who could guess the significance of 12 probable error ± 2 . In fact, those who know more than a little trig are rare. I am not allowed to tell you much about the ship I am in except in general terms. For one thing, I should never have believed that one man could live in a cubbyhole six by two by two, but it can be done!"

We take pleasure in including a new name in these class notes, for we have news of Captain Syd Crook, who says: "As you may remember, I got in the Army in January, 1941, and G.I.'d it for a year and a half in the Coast Artillery; then I got a break and went to Army antiaircraft Officer Candidate School. I was assigned to a post in New Hampshire, where I remained until recently. Shortly after becoming a shavetail, I was married to Frances Clark of Washington, D.C. We are now gloating over a half-year-old son and heir."

Since we last heard from Hans Walz, he has moved around considerably and is now

commanding officer of a squadron; he says: "I like the job very much. We're really eager to get on that boat — the sooner the better. I heard recently from Train and Ken Warden, both Army lieutenants, in New Guinea and Bougainville respectively. That is about all the news of the boys I know. This moving around so much has wrecked my correspondence. I did hear from Frank Clauson, who is working for an oil company around Long Beach, Calif. I've also heard from Ensign Al Bakker, who is on a ship somewhere in the Pacific."

Bedrich Hettich has written us a veritable history of himself. Here it is: "The other day I stopped at the post library, where I happened on *The Review*. I sat right down and read through the last six or seven issues. It was like receiving a letter from home, milling through all the familiar names. I then had a strong urge to give you a short biography of myself and send information on some of our classmates. Last October I took a position with the Texas Company as a process engineer. Frank Clauson also lined up with the company, although I don't know where he is now. We were sent to train at different refineries in the first two months of our employment. I haven't heard from him since he left Amarillo, Texas, last January. I was in Montana, and was later sent to Lockport, Ill. At Lockport I was working on heat and material balances to determine operating efficiencies of fractionating equipment, heat exchang-

ers, heaters, and pumps. I was not held responsible for any specific process at the plant because my status at the draft board was very uncertain. As you can see, it is now much more positive. I am a private in the Armored Replacement Training Center. The Navy rejected me because my eyes were too weak. The only way I can become commissioned now is to complete basic training here and hence be sent to Officer Candidate School upon recommendation of the company officer. While in Lockport, I ran into Keith Rumbel, who is now in the New York office of the Texas Company. He looked well and happy, like the same old Keith we knew in Buffalo. I have been corresponding with Jim Reswick who, until recently, was located in Little Rock, Ark. He was an ensign in the Navy Ferry Service. I don't know what he is doing now, except that he has gone to Shreveport, La. He expects to be sent to St. Louis shortly."

George Musgrave and Virgil Otto are "interested in reviving the Indiana alumni chapter of M.I.T., but have been unable to get in touch with any live wires regarding it." Speak up, Indiana live wires, and let's see what can be done to the Indiana alumni chapter. And all the rest of you, remember to tell me where you are and what you have been doing, and particularly, whom you have seen. Cheerio. — CLINTON C. KEMP, *General Secretary*, Barrington Court, 988 Memorial Drive, Cambridge 38, Mass.

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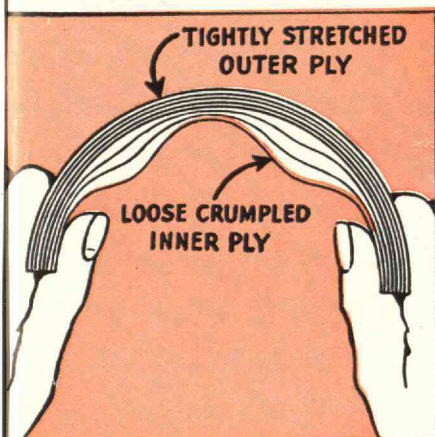
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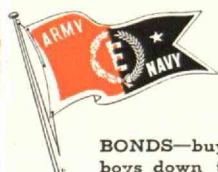
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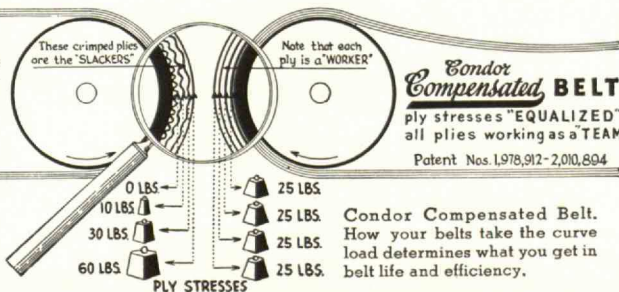
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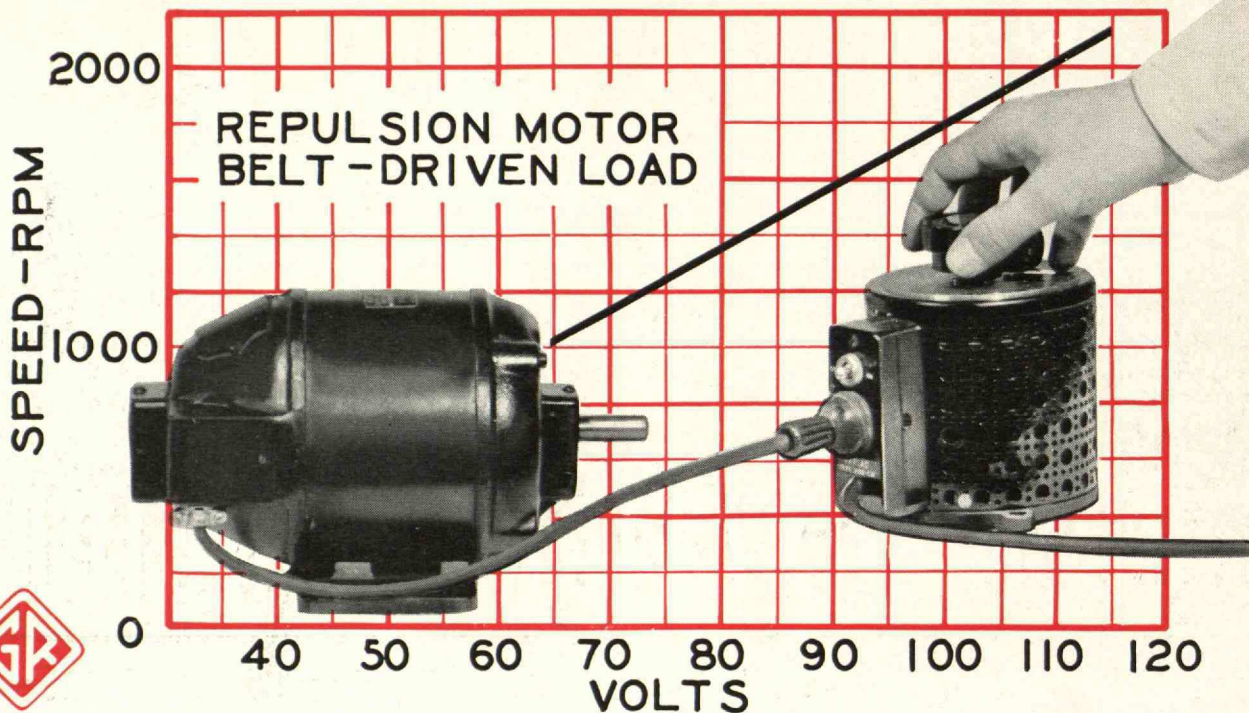


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